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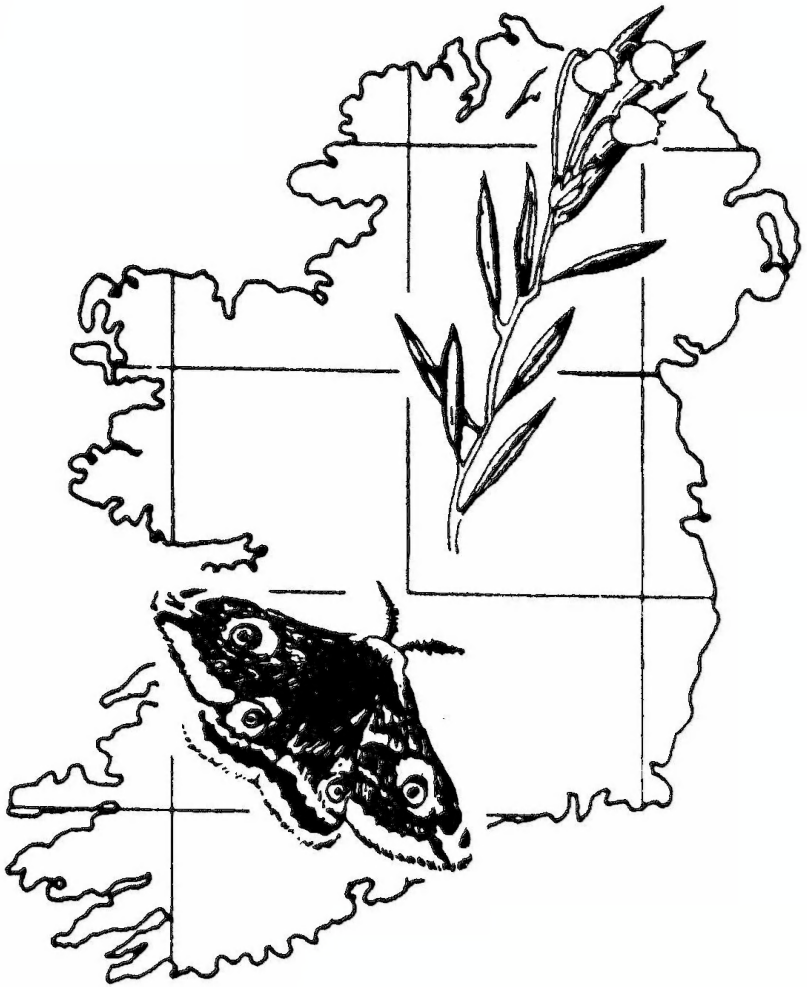

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DEDICATION

This Bulletin is dedicated to the memory of Dr Frank Jeal (1937-2017)

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The Irish Biogeographical Society desires it to be understood that it is not answerable for any opinion, representation of facts, or train of reasoning that may appear in the following papers. The authors of the various articles are alone responsible for their contents and for the correctness of references.

Enquiries concerning the Bulletin (including the purchase of back issues) may be sent to The Irish Biogeographical Society c/o the Editor Dr J. P. O'Connor, National Museum of Ireland – Natural History, Dublin D02 F627, Ireland <joconnor@museum.ie> or to the Treasurer Mr John Walsh at <ampersandwalsh@gmail.com>.

BULLETIN OF THE IRISH BIOGEOGRAPHICAL SOCIETY
Number 41

CONTENTS

Editorial……..……...……...……..……1

Revised instructions to authors.....……...…2

Deep-water form of the Devonshire Cup Coral *Caryophyllia smithii* var. *clavus* Scacchi, 1835 (Anthozoa, Scleractinia, Caryophyllidae) in Irish waters, and a review of *Caryophyllia* species reported from the North East Atlantic
D. T. G. Quigley, S. Ni Churraidhin and D. MacGabhann.....3

Some Chironomidae (Insecta, Diptera) from south east Ireland – new and additional records for County Wexford and hydrometric areas 11 and 12
Declan A. Murray.....22

Limnephilus hirsutus, *Limnephilus ignavus* and *Ceraclea albimacula* (Trichoptera): three species new to Northern Ireland along with some other records from Lough na Trosk, County Antrim
James P. O'Connor and Cathal McNaughton.....33

Glossosoma conformis, Hydropsyche contubernalis and *Agrypnia varia* (Trichoptera): three species of caddisfly new to Northern Ireland, with a checklist of recorded species
James P. O'Connor, Cathal McNaughton and Peter H. Langton.....39

Further distributional and flight-period records for Irish caddisflies (Trichoptera)
J. P. O'Connor and M. A. O'Connor.....51

The Chironomidae (Insecta, Diptera) of Achill Island, County Mayo – new records and checklist
Declan A. Murray.....90

(*Contents continued overleaf*)

Some new distributional records of caddisflies (Trichoptera) from Northern Ireland
James P. O'Connor and Cathal McNaughton.....103

Additional distribution records of Chironomidae (Insecta: Diptera) in Ireland from recent and past collections
D. A. Murray and P. J. Ashe.....112

Corrections of grid reference for three sites in distribution records of Irish Chironomidae (Diptera), parts 1-3
D. A. Murray, P. H. Langton, J. P. O'Connor and P. J. Ashe.....130

First Irish records of the cream-streaked ladybird *Harmonia quadripunctata* (Pontoppidan, 1763) (Coleoptera: Coccinellidae)
Myles Nolan.....134

Some recent records for uncommon Irish woodlice (Crustacea: Isopoda)
Martin Cawley.....140

An indexed bibliographical checklist of the woodlice (Crustacea: Isopoda) of Ireland (1836-2017)
Martin Cawley.....145

Additions, deletions and corrections to the Staphylinidae in the *Irish Coleoptera annotated list*, with a revised check-list of Irish species
Jervis A. Good and Roy Anderson.....178

Notice. *Irish Naturalists' Journal*…….……..…….....235

Publications available from The Irish Biogeographical Society….....235

EDITORIAL

This Bulletin is dedicated to the memory of Dr Frank Jeal who died on the 28 August 2017. He was a long-time member of the Irish Biogeographical Society and also served on its Committee. A gifted and inspirational lecturer, he was a staff member in the Department of Zoology, School of Natural Sciences, Trinity College, University of Dublin (Senior Lecturer from 1965 to 2001). After retirement, he continued to lecture on the subjects of Marine Biology, Vertebrate and Invertebrate Biology. He was born in London in 1937, with Irish ancestry through his maternal side but grew up in rural Oxfordshire. He read Natural Sciences in Oxford and then studied in Bangor, North Wales for a Ph.D. in embryology, before coming to Dublin. Over a ten year period, he also worked part of each year in the University of Jamaica assisting in research on coral reefs

At Oxford, he became interested in folk music and learned to play the accordion for folk and Morris-dance groups. In Ireland, he also maintained an interest in Irish traditional music in general and was well-known for his playing and singing at gatherings in central Dublin. With his warm, gentle humour and conviviality, he made numerous friends both inside and outside Trinity. I had many congenial pints with him over the years, as did other members of the Society, and greatly enjoyed his erudite conversations and anecdotes concerning all aspects of Zoology. His engaging personality will be greatly missed by all those who knew him.

Dr Liam Lysaght, Director of the National Biodiversity Data Centre, has recently written to the Society suggesting that electronic versions of the data published in papers in the *Bulletin* should be forwarded to the Centre after publication. The Committee fully supports Dr Lysaght in this approach as it would further strengthen links between the Centre and the Society.

This year's Bulletin contains an eclectic range of topics and includes articles on beetles (staphylinids), caddisflies, cup-corals, ladybirds, non-biting midges (chironomids) and woodlice. There are numerous new records including additions to the fauna of Ireland and regional lists. Of particular interest will be the bibliography of Irish woodlice and the revised check-list of Irish Staphylinidae. The cream-streaked ladybird *Harmonia quadripunctata* is an exciting discovery. Three specimens were beaten from pine trees on the Dublin coast in September 2017. This species has expanded through Britain over the last eighty years and now more sightings of the species may be expected from Ireland's east coast in the future.

On behalf of the Society, I would like to thank all our authors and referees. They have made notable contributions to this *Bulletin* . Also a word of gratitude to our sponsors whose financial support has been so important to the Society and its members. Their generosity is greatly appreciated by all of us.

J. P. O'Connor, Editor, 22 October 2017

REVISED INSTRUCTIONS TO AUTHORS

1. Submitted manuscripts should follow the format of articles in *Bulletin* **Number 41** and other recent issues. The titles of journals should be given in full in the references. The references should be arranged alphabetically with, where relevant, Anon. appearing first.

2. Manuscripts may be submitted by e-mail to the Editor at <joconnor@museum.ie> or *via* our Treasurer Mr John Walsh at <ampersandwalsh@gmail.com>. Figures and photographs should be sent as jpegs. Complex tables should also be sent as jpegs and not in Excel. Remember that all figures and tables should be submitted in a type size which will remain legible after reduction to A5. Typed copy is still acceptable. It should be sent, on A4 paper, using double-spacing and 2.5cm (one inch) margins with the text and any figures on an accompanying compact disc or USB stick, to the Editor, Dr J. P. O'Connor, Emeritus Entomologist, National Museum of Ireland – Natural History, Merrion Street, Dublin D02 F627, Ireland.

3. Word is preferred and Times New Roman 13pt should be used.

4. Records: please ensure that, when possible, the following information is incorporated in each record included in a manuscript:-
(a) latin name of organism.
(b) statement of the reference work used as the source of nomenclature employed in the text. The describer's name should be also given when a zoological species is first mentioned in the text.
(c) locality details including at least a four figure Irish grid reference (e.g. N3946), county or vice-county and some ecological data about the collection site, plus date of capture.
(d) collector's name and determiner's name (where different from the collector's name), and
(e) altitude data should be included where relevant.

5. Each year, the closing date for submissions will be the 15 October for that year's *Bulletin*. Mss received after that date will be considered for the following year's *Bulletin*. All papers will be refereed and any major changes referred to the author(s) for consideration.

Bulletin of the Irish Biogeographical Society **Number 41** (2017)

DEEP-WATER FORM OF THE DEVONSHIRE CUP CORAL *CARYOPHYLLIA SMITHII* VAR. *CLAVUS* SCACCHI, 1835 (ANTHOZOA, SCLERACTINIA, CARYOPHYLLIDAE) IN IRISH WATERS, AND A REVIEW OF *CARYOPHYLLIA* SPECIES REPORTED FROM THE NORTH EAST ATLANTIC

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Abstract

The Devonshire Cup Coral *Caryophyllia smithii* Stokes & Broderip, 1828 occurs as two eco-types: a 'shallow-water' sub-cylindrical form (var. *smithii*), and a 'deep-water' conical form (var. *clavus* Scacchi, 1835). Although both eco-types are well known, there are relatively few definitive records of the deep-water eco-type from Irish waters. The current article reports on a recent record of *C. smithii* var. *clavus* from the west coast of Ireland and summarises previous reports from Irish waters. Other *Caryophyllia* species occurring in the North East (NE) Atlantic are briefly reviewed.

Key words: Devonshire Cup Coral, *Caryophyllia smithii*, *Caryophyllia* var. *clavus,* Ireland.

Introduction

The genus *Caryophyllia* Lamarck, 1801 is the most diverse genus within the exclusively azooxanthellate order Scleractinia (Hard Corals), comprising at least 66 extant species and 195 nominal fossil species dating from the Upper Jurassic Period (163-145 Mya). All representatives of this monophyletic genus are solitary, and include forms firmly attached to hard substrates and others that detach at an early stage to continue a free life form on soft bottoms. *Caryophyllia* species are found worldwide, ranging from the Arctic to the Antarctic and from intertidal waters to oceanic depths of at least 3000m (Kitahara *et al.,* 2010; Cairns and Kitahara, 2012).

During the research expeditions of the H.M.S. Porcupine in the North Atlantic between 1869 and 1870, scleractinians were reported for the first time from depths below 2000m. The expeditions discovered 14 new scleractinian species, including five valid *Caryophyllia* species new to science (Duncan, 1873, 1878). A total of 11 valid *Caryophyllia* species have been recorded from the NE Atlantic to date, including nine from European Atlantic waters.

Apart from the Devonshire Cup Coral *Caryophyllia smithii* Stokes & Broderip, 1828 and the Southern Cup Coral *C. inornata Duncan*, 1878, which are both found in relatively shallow

inshore waters, all of the other NE species are primarily found in deep-water (Zibrowius, 1974; Cairns and Chapman, 2001; Reveillaud *et al*., 2008).

Caryophyllia alberti Zibrowius, 1980 and *C. foresti* Zibrowius, 1980 have only been recorded from the Azores to date. Although *C. sarsiae* Zibrowius, 1974 has a disjunct amphi-Atlantic distribution, all of the other species are endemic to the NE Atlantic (Cairns and Chapman, 2001).

Caryophyllia smithii ranges from SW Norway (62.7°N, 07.0°E; GBIF 1272929155), including the Skagerrak (Tendal and Nielsen, 1997) and Kattegat (Lundsteen *et al*., 2008), southwards to the Mediterranean. It is commonly found attached to rocks, shells and other hard substrata (Wilson, 1976; Gibson *et al*., 2001) and is frequently found attached to the calcareous tubes of the polychaete *Ditrupa arietina* (O. F. Müller, 1776) (Holdsworth, 1862; Duncan, 1870, 1873; Wilson, 1975, 1976; Hiscock and Howlett, 1976; Ellis *et al*., 2002) from extreme low water spring tide levels to depths of at least 468 m (Reveillaud *et al*., 2008). In SW UK waters, the acorn barnacle *Megatrema anglicum* (Sowerby, 1823) is frequently found as an epibiont on *C. smithii* (Rees, 1963, 1966).

Caryophyllia smithii occurs as two eco-types: a 'shallow-water form' (*C. smithii* var. *smithii*), sub-cylindrical, constricted in the lower part, with a broad attached base (Figs 1-2), and a 'deep-water form' (*C. smithii* var. *clavus* Scacchi, 1835), inversely conical with a narrow base (Figs 3-4) (Manuel, 1988).

The shallow-water eco-type of *C. smithii* is common and locally abundant around most of the British Isles (Rees, 1963, 1966; Hiscock and Howlett, 1976; Ellis *et al*., 2002; Gibson *et al*., 2001; Wood, 2005), but has rarely been recorded from the east coast of the UK (Wilson, 1975), or in the central North Sea south of latitude 57.7°N where its distribution appears to be limited by the restricted availability of natural hard substrata. However, Coolen *et al*. (2015), recently observed *C. smithii* on an unidentified wreck at a depth of 33m on the Dogger Bank (55.037°N, 01.703°E), and noted that there were many artificial hard substrata in this area in the form of shipwrecks and offshore oil and gas installations which might provide stepping stones for *C. smithii* to expand its distribution.

The deep-water eco-type of *C. smithii* ranges from depths of about 20m to at least 1440m (Stephens and Hickson, 1909), and has been recorded from as far north as the Shetland Islands (61.2°N, 0.4°W) (Wilson, 1975), southwards to the Mediterranean (Best, 1968). The upper depth limit of the deep-water eco-type is thought to be influenced by water turbulence because the narrow base appears to be vulnerable to breakage and detached specimens are frequently found living free on the bottom (Manuel, 1988).

Caryophyllia inornata has only been recorded from a few isolated inshore locations around the British Isles to date, including Loch Sunart, W Scotland (56.7°N, 06.0°W), Rathlin Island

(NE Ireland), Irish Sea (Wales), western English Channel (Devon, Dorset, and Channel Islands), Lough Hyne (SW Ireland), southwards to the Mediterranean. However, Wood (2005) and Goodwin *et al.* (2011) cautioned that the species might be easily overlooked and/or confused with the 'shallow-water form' of *C. smithii*, and may be more widespread than the current paucity of Irish and British records would suggest.

Materials and methods

On 23 February 2012, the MFV "*Oilean An Oir*" (G501) [Skipper: Mr Stephen Joyce, Furbo, County Galway] retrieved two dead specimens of the deep-water form of the Devonshire Cup Coral *C. smithii* var. *clavus* while trawling at a depth of 104m off the west coast of Ireland (52.8°N, 10.4°W). Both specimens were donated to the National Museum of Ireland - Natural History, Dublin (NMINH: 2013.8.1). The following measurements were recorded:

	Specimen 1	Specimen 2
Height (mm)	25	20
Maximum width (mm)	20	19
Minimum width (mm)	14	14

Previous definitive records of the deep-water form of *C. smithii* (as *C. smithii* var. *clavus*; *C. clavus* Scacchi, 1835; *C. clavus* var. *smithii* Duncan, 1874; *C. borealis* Fleming, 1828; and *C. clavus* var. *borealis* Duncan, 1874) from Irish waters were reviewed based on published literature, museum collections (NMINH, *British Museum of Natural History, London* - BMNH, and *Muséum National d'Histoire Naturelle, Paris* - MNHN), and data extracted from the *Global Biodiversity Information Facility* <www.gbif.org>. Undesignated forms of *C. smithii* were excluded from the review.

Results

A total of 11 valid *Caryophyllia* species have been recorded from the NE Atlantic to date, including nine from European Atlantic waters (Table 1).

The wide range of morphological variation observed in *C. smithii* led to significant taxonomic confusion during the 19th century and up until the late 1960s. Indeed, between 1828 and 1878, *C. smithii* was reported under at least 19 different synonyms (Table 2).

Over the last two centuries, *C. smithii* has been recorded from all around the Irish coast. Thompson (1856) referred to the earliest known records from Irish waters. He noted that several specimens had been taken on the Nymph Bank off County Cork in 1819 and again during *circa* 1845. Further specimens were obtained from Youghal, County Cork during April 1836 and from Bundoran, County Donegal. During 1856, 1857, and 1858, Hyndman (1858, 1859) reported specimens (as *Cyathina smithii*) from a depth of 137m off the Maidens Lighthouse,

Larne, County Antrim. Gosse (1860) referred to additional specimens from Roundstone, County Galway (NMINH: 2008.93.31), Bantry Bay, County Cork, Wexford Bay, and Loughs Foyle & Swilly, County Donegal.

In 1869, *C. smithii* was frequently recorded off SW Ireland during the research cruises of the 'H.M.S. Porcupine' (Duncan, 1870, 1873). During 1885, Haddon (1885, 1886) reported that specimens (as *C. smithii* var. *esmeralda*) had been taken close to the shore under the Martello Tower on Dalkey Island, County Dublin (NMINH: 1885.37.1), and off Clonakilty Bay, County Cork. Numerous specimens were collected off SW Ireland during the research cruises of the 'Lord Brandon' in 1885 and 1886 (Haddon, 1886; Haddon and Green, 1889; NMINH: 1891.25.489, 490, 570 & 572; NMINH 2008.93.324, 328 & 412). A number of specimens were recorded from Valentia Island, County Kerry during 1893 (NMINH: 1893.89.1005-6) and 1896 (Beaumont, 1900).

Between 1901 and 1914, *C. smithii* was frequently recorded during several research cruises by the 'Helga' off the W and SW coasts (NMINH: 1908.57.3; NMINH 1911.206.66-67; NMINH 2008.93.323). A further specimen was taken off Dalkey Sound, County Dublin during 1907 (NMINH: 1919.102.482). During the Clare Island Survey, Stephens (1912) reported several specimens from extreme low water to a depth of 26m (NMINH: 1910.256.2 & 369.4; NMINH 1911.245.4). Renouf (1931) recorded specimens from Lough Ine (Hyne), County Cork during the late 1920s. Rees (1963) noted that specimens had been taken off Tory Island, County Donegal during 1935 and again during the research cruise of the 'SV Manihine' off SW Ireland in 1950. During 1952 and 1953, Williams (1954) reported specimens from LWST level at Angus Rock Lighthouse, at the entrance to Strangford Lough, County Antrim (NE Ireland).

During the 1960s, several specimens of *C. smithii* were found attached to a lead box taken from the wreck of the 'Tayleur', lost off Lambay Island, County Dublin in 1854 (NMINH: 1960.24.1). In 1963, a specimen was retrieved from a depth of 130m SSE Daunt Lightship, off Cork Harbour, and during 1967 and 1968, specimens were observed on the lower shore at Carnboy Point and Bunbeg, County Donegal (Minchin, pers. comm.). During 1969, three small specimens were found attached to a piece of rock trawled from a depth of 73m N of Sybil Head, County Kerry (O'Riordan, 1971; NMINH: 1970.8.1) and during the same year, Guiry (1971) reported further specimens from rock crevices at MLWS levels at Ballinacourty Point and Helvick Head, County Waterford (SE Ireland).

During the 1970s, Murphy and Parker (1972) discovered several dead specimens of *C. smithii* attached to rocks and old shells in the Blasket Sound and the Inishnabro-Inishvickilaun Bight, County Kerry. During the late 1960s and early 1970s, Ryland and Nelson-Smith (1975) remarked that *C. smithii* was notable among large boulders and under rock overhangs at Keeraunnagark rapids, Cashla Bay, County Galway. Wilson (1975, 1976) noted that the 'RRS

Challenger' had taken specimens off SW Ireland in 1975. Specimens were taken in Dingle Bay, County Kerry during 1977 (NMINH: 1977.111.1) and again during 1985 (NMINH: 1986.21.1). During the late 1970s and early 1980s, Dinneen *et al.* (1986) recorded *C. smithii* from Kinsale Harbour, County Cork.

Several specimens of *C. smithii* were observed at a number of locations during the 'BioMar Surveys' (1993-96) (Picton and Morrow, 2006) e.g. Crownween Rock and Rush Rock, County Galway (NMINH: 1993.31.1059), Kitchen Cove, Dunmanus Bay, County Cork (NMINH: 1993.31.1060), and Benwee Geevraun Point, County Mayo (NMINH: 1993.31.1061).

During an extensive beam trawl survey carried out by the 'RV Cirolana' in the Celtic Sea in 2000, Ellis *et al.* (2002) noted that *C. smithii* was widespread and abundant, occurring in 59% of the hauls. In 2009, Goodwin *et al.* (2011) recorded several more specimens from Rathlin Island, County Antrim.

Although Stephens and Hickson (1909) remarked that the deep-water form of *C. smithii* (as *C. clavus*) 'has previously been found at many points off the Irish coast', there are relatively few definitive records from Irish waters (Table 3). While collating the H.M.S. Porcupine records significant discrepancies were noted for the position, depth and bottom temperatures relating to several station numbers listed by different authors. For example, for Station No. 2, Duncan (1870, 1873) listed 51° 57'N, 10° 23'W, 30-40 fathoms and 52°F, while Carpenter *et al.* (1870) and Le Danois (1948) listed 51°22'N, 12°25'W, 808 fathoms, and 41.4°F. Discrepancies were also noted while collating positional and depth records relating to station numbers of the 'Lord Brandon' (Haddon and Green, 1889; Le Danois, 1948) and 'Helga' (Stephens and Hickson, 1909; Le Danois, 1948).

Discussion

In 1862, Holdsworth described the first known UK specimens of the deep-water eco-type of *C. smithii* (as *C. clavus*) which were dredged from deep-water off Shetland and Loch Fyne (Firth of Clyde, SW Scotland). He noted that the conically shaped specimens were 'readily distinguished from its near ally, our common *C. smithii'*, and identical to *Cyathina turbinata* described by Philippi (1836) from Sicily (Mediterranean Sea).

In 1873, Duncan remarked: "There is perhaps no more variable form of simple coral than *Caryophyllia clavus* Scacchi… *Caryophyllia smithi*, which is so common on the shores of the extreme South-West of England… has a broad base; but this is the only strong distinction between it and *Caryophyllia clavus*. The gradation of a delicate pedunculated *clavus* into a broad based form with all the other specific peculiarities depends upon the depth of the water and the nature of the bottom; and the variety *borealis* gradually becomes variety *smithi* in the northern seas and in the Mediterranean."

Over 100 years later, Best (1968) and Zibrowius (1971) concluded that both eco-types represented varieties of *C. smithii* and that the range of morphological variations observed in the Mediterranean Sea were related to environmental gradients such as water depth, turbulence, and current speeds. Similar observations were made by Wilson (1975) in Scottish waters, and by Bell and Turner (2000) and Bell (2002) in Irish waters.

Wilson (1975) noted that the 'shallow-water' eco-type is restricted to waters where tidal currents are >100 cm/sec, whereas the 'deep-water' eco-type is found in areas where tidal currents are <100 cm/sec, attached to a variety of substrates, including *Ditrupa* tubes in sandy areas. He concluded that water depth was not a significant factor in the relative distribution of both eco-types.

Although the shallow-water eco-type of *C. smithii* is widely distributed around the Irish coast, there are relatively few definitive records of the deep-water eco-type and the vast majority of these specimens were reported from SW Ireland over a century ago.

Conclusions and Recommendations

Although the paucity of deep-water records may simply reflect a lack of recording effort, much of the literature relating to *C. smithii* and information relating to specimens housed in museum collections lack form-specific designations. A re-examination of undesignated specimens may reveal significantly more data on the occurrence of the deep-water form.

Although *C. smithii* var. *clavus* is currently regarded as a junior synonym of *C. smithii* (Gibson *et al.*, 2001), the application of recently developed biochemical, molecular, genetic and high-resolution morphometric techniques (Stolarski and Roniewicz, 2001; Budd *et al.,* 2010; Veron, 2015) may help to resolve its true taxonomic status.

Both forms of *C. smithii* may represent useful indicator eco-types based on the apparent effects of tidal-current strength on their respective morphological development. Although the depth distribution of both eco-types overlaps, the occurrence of either eco-type at a particular location may provide an indication of environmental gradients affecting specific oceanographical areas. In this respect, it would be helpful if all future records of *C. smithii* were nominally categorised by eco-type.

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Minchin (Ballina, County Tipperary) for permission to include details of his unpublished records, and Graham Johnson, Stephanie Ronan (Marine Institute, Galway) and Chilekwa Chisala (Flanders Marine Institute, Oostende, Belgium) for their assistance with the literature.

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TABLE 1. *Caryophyllia* species recorded from the NE Atlantic, along with reported depth ranges and maximum northerly distribution.

Species	**Depth Range (m)**	**Maximum reported northerly NE Atlantic distribution**	**Reference**
C. inornata Duncan, 1878	0-100	Loch Sunart, W Scotland, 56.7° N, 06.0° W	Goodwin *et al.* (2011)
C. smithii Stokes and Broderip, 1828	0-468	Tøvika, Averøy, Møre og Romsdal, SW Norway, 62.7° N, 07.0° E	GBIF 1272929155
C. smithii var. clavus Scacchi, 1835	20-1440	Bressay Ground, 74 km E Whalsey, Skerries, N Scotland, 61.2° N, 0.4° W	BMNH:1974.5.12.2 Wilson (1975)
C. cyathus (Ellis and Solander, 1786	70-1190	Shetland, N Scotland	BMNH:1905.11.1.24-30; Duncan (1873)
C. alberti Zibrowius, 1980	76-506	NNW Flores, Azores, 39.5° N, 31.3° W	MNHN-IK-2012-18436
C. calveri Duncan, 1873	91-1050	Celtic Sea, SW Ireland, 48.1° N, 08.5° W	BMNH:1978.2.5.33; Zibrowius (1974)
C. foresti Zibrowius, 1980	155-950	SE Sao Jorge, Azores, 38.5° N, 27.8° W	MNHN-IK-2012-18215
C. sarsiae Zibrowius, 1974	500-220	Porcupine Bank, W Ireland, 53.0° N, 14.9° W	MNHN-IK-2011-2263
C. abyssorum Duncan, 1873	600-2002	Celtic Sea, SW Ireland, 48.7° N, 10.9° W	MNHN-IK-2012-18397; Duncan (1873)
C. seguenzae Duncan, 1873	910-2100	E Rockall, 56.4° N, 14.1° W	BMNH: 1975.5.7.2
C. atlantica (Duncan, 1873)	1100-2165	NW Ireland, 55.3° N, 10.2° W	MNHN-IK-2011-2350
C. ambrosia Alcock, 1898	1520-2940	W Hebrides, Scotland	BMNH:1978.2.5.166

TABLE 2. Synonyms of *Caryophylia smithii* Stokes & Broderip, 1828.

Turbinolia borealis Fleming, 1828
Caryophyllia borealis Fleming, 1828
Caryophyllia clavus Scacchi, 1835
Cyathina turbinata Philippi, 1836
Caryophyllia sessilis Bellamy, 1839
Caryophyllia pseudoturbinolia Michelin, 1841
Caryophyllia smithii var. *castanea* Grosse, 1860
Caryophyllia smithii var. *clara* Grosse, 1860
Caryophyllia smithii var. *esmeralda* Grosse, 1860
Paracyathus pteropus Gosse, 1860
Paracyathus taxilianus Gosse, 1860
Paracyathus thulensis Gosse, 1860
Caryophyllia clavus var. *elongata* Duncan, 1873
Caryophyllia clavus var. *epithecata* Duncan, 1873
Caryophyllia clavus var. *exserta* Duncan, 1873
Caryophyllia clavus var. *borealis* Duncan, 1874
Caryophyllia clavus var. *smithii* Duncan, 1874
Paracyathus humilis Duncan, 1878
Paracyathus monilis Duncan, 1878

TABLE 3. Records of the deep-water form of the Devonshire Cup Coral *Caryophyllia smithii* var. *clavus* from Irish waters. Co. = County.

1. **Date** 11 July 1869. **Location** SW Ireland. **Vessel** HMS Porcupine. **Station No.** 2. **Latitude** 51.3°N. **Longitude** 12.4°W. **Depth (m)** 1440. **Substrate** rough ground. **Synonym** *C. borealis*. **Notes** very numerous, bottom water temperature 11.11°C. **References** Carpenter *et al*. (1870); Duncan (1873).

2. **Date** 4 August 1885. **Location** 9.6km NE Fastnet, Co. Cork, SW Ireland. **Vessel** Lord Brandon. **Station No.** 3. **Depth (m)** 160. **Substrate** sand. **Synonym** *C. clavus* var. *borealis*. **Museum Reg. No.** NMINH: 1891.25.486. **Notes** 3 large specimens. **Reference** Haddon (1886).

3. **Date** 5 August 1885. **Location** 3.2km SW Skarriff, Bantry Bay, Co. Cork, SW Ireland. **Vessel** Lord Brandon. **Station No.** 11. **Latitude** 51.9°N. **Longitude** 10.5°W. **Depth (m)** 76-88. **Substrate** muddy sand. **Synonym** *C. clavus* var. *borealis*. **Reference** Haddon (1886).

4. **Date** 5 August 1885. **Location** 1.6km SW Skarriff, Bantry Bay, Co. Cork, SW Ireland. **Vessel** Lord Brandon. **Station No.** 12. **Depth (m)** 80. **Substrate** muddy sand. **Synonym** *C. clavus* var. *borealis*. **Museum Reg. No.** NMINH: 1891.25.487. **Reference** Haddon (1886).

5. **Date** 5 August 1885. **Location** 1.6km SW Skarriff, Bantry Bay, Co. Cork, SW Ireland. **Vessel** Lord Brandon. **Station No.** 12. **Depth (m)** 80. **Substrate**: muddy sand. **Synonym** *C. clavus* var. *smithi*. **Museum Reg. No.** NMINH: 1891.25.488. **Notes** with fragments of var. *Borealis*. **Reference** Haddon (1886).

6. **Date** 6 August 1885. **Location** 4km E Dursey Head, Co. Cork, SW Ireland. **Vessel** Lord Brandon. **Station No.** 23. **Depth (m)** 70-74. **Substrate** coarse sand. **Synonym** *C. clavus* var. *smithi*. **Museum Reg. No.** NMINH: 2008.93.326. **Reference** Haddon (1886).

7. **Date** 10 July 1886. **Location** 67.2km off Great Skellig, Co. Kerry, SW Ireland. **Vessel** Lord Brandon. **Station No.** 49. **Latitude** 51.3°N. **Longitude** 11.4°W. **Depth (m)** 288. **Substrate** fine sand. **Synonym** *C. clavus*. **Museum Reg. No.** NMINH: 1891.25.708. **Notes** with the sponges *Pione vastifica*. (Hancock, 1849) and *Protosuberites incrustans* (Hansen, 1885). **Reference** Haddon and Green (1889).

TABLE 3 (continued).

8. Date 15 July 1886. **Location** 47.2.km SW Dursey Head, Co. Cork, SW Ireland. **Vessel** Lord Brandon. **Station No.** 56. **Latitude**: 51.3°N. **Longitude** 10.9°W. **Depth (m)** 165. **Substrate** mud. **Synonym** *C. borealis*. **Museum Reg. No.** NMINH: 1891.25.570. **Notes** 5 specimens. **Reference** Haddon and Green (1889).

9. Date 13 September 1901. **Location** 80km NW Cleggan Head, Co. Galway, W Ireland. **Vessel** Helga. **Station No.** CXXXII. **Latitude** 54.0°N. **Longitude** 11.3°W. **Depth (m)** 216. **Synonym** *C. clavus*. **Museum Reg. No.** NMINH: 1912.30.1. **Reference** NMINH.

10. Date 9 May 1906. **Location** SW Ireland. **Vessel** Helga. **Station No.** S.R. 331. **Latitude** 51.2°N. **Longitude** 11.9°W. **Depth (m)** 1100-1200. **Synonym** *C. clavus*. **Museum Reg. No.** NMINH: 1908.57.6. **Notes** 2 specimens. **Reference** Stephens and Hickson (1909).

11. Date 10 August 1906. **Location** SW Ireland. **Vessel** Helga. **Station No.** S.R. 363. **Latitude** 51.4°N. **Longitude** 12.0°W. **Depth (m)** 1250. **Synonym** *C. clavus*. **Museum Reg. No.** NMINH: 1908.57.11. **Notes** 3 specimens, bottom temperature 7.92°C @ 1200m. **Reference** Stephens and Hickson (1909).

12. Date 28 August 1907. **Location** SW Ireland. **Vessel** Helga. **Station No.** S.R. 447. **Latitude** 51.3°N. **Longitude** 11.0°W. **Depth (m)** 400-650. **Synonym**: *C. clavus*. **Museum Reg. No.** NMINH: 1908.57.13. **Notes** 1 specimen, bottom temperature 7.19°C. **Reference** Stephens and Hickson (1909).

13. Date 12 September 1907. **Location** SW Ireland. **Vessel** Helga. **Station No.** S.R. 506. **Latitude** 50.6°N. **Longitude** 11.3°W. **Depth (m)**: 1100. **Synonym** *C. clavus*. **Museum Reg. No.** NMINH: 1908.57.14. **Notes** 2 specimens, bottom temperature 8.22°C @ 1200m. **Reference** Stephens and Hickson (1909).

14. Date 8 November 1907. **Location** 112km SW Fastnet Light, Co. Cork, SW Ireland. **Vessel** Helga. **Station No.** S.R. 528. **Latitude** 50.4°N. **Longitude** 10.4°W. **Depth (m)** 130. **Synonym** *C. clavus*. **Museum Reg. No.** NMINH: 1908.57.12. **Notes** 1 specimen, bottom temperature 10.22°C. **Reference** Stephens and Hickson (1909).

TABLE 3 (continued).

15. Date 12 July 1935. **Location** Shelf edge, Tory Island, Co. Donegal, NW Ireland. **Vessel** commercial trawler. **Latitude** 55.5°N. **Longitude** 9.6°W. **Depth (m)** 238. **Synonym** *C. smithii* var. *clavus*. **Museum Reg. No.** BMNH:1962.2.9.1-4. **Notes** 4 narrow-based specimens attached to either *Ditrupa* tubes or cidaroid spines. **Reference** Wilson (1975).

16. Date 23 February 2012. **Location** off Co. Clare, W Ireland. **Vessel** "Oilean An Oir" (G501). **Latitude** 52.8°N. **Longitude** 10.4°W. **Depth (m)** 104. **Synonym** *C. smithii* var. *clavus*. **Museum Reg. No.** NMINH:2013.8.1. **Notes** 2 specimens. **Reference**: this paper.

FIGURE 1. *Caryophyllia smithii* var *clavus* (deep-water form), County Clare. Photograph Declan Quigley.

FIGURE 2. *Caryophyllia smithii* var *clavus* (deep-water form), County Clare, calicular view. Photograph Declan Quigley.

FIGURE 3. *Caryophyllia smithii* (shallow-water form), Irish Sea. Photograph Declan MacGabhann.

FIGURE 4. *Caryophyllia smithii* (shallow-water form), Irish Sea. Photograph Declan MacGabhann.

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SOME CHIRONOMIDAE (INSECTA, DIPTERA) FROM SOUTH EAST IRELAND – NEW AND ADDITIONAL RECORDS FOR COUNTY WEXFORD AND HYDROMETRIC AREAS 11 AND 12

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Abstract

Records of 33 species of Chironomidae are reported from County Wexford, Ireland. Twenty species are recorded from the County for the first time, eighteen are new records for Hydrometric Area 11 and eleven are new for Hydrometric Area 12. The identified material is listed and comments given.

Key words: Chironomidae, Ireland, Wexford, Hydrometric Area, distribution.

Introduction

It has been customary to document species records by administrative county in Ireland. However, the distribution of aquatic insects, such as the Chironomidae, is determined by availability of aquatic habitats suitable for their juvenile development and not by man-made, arbitrary, administrative regions. Recent distribution records of Chironomidae in Ireland (e.g. Murray *et al.*, 2013, 2014, 2015; Murray, 2016) have been given both by county and also by their occurrence in one or more of the forty Hydrometric Areas (HA) that portray the major river drainage basins of Ireland (see <www.epa.ie> for further details of hydrometric areas). The terrain of County Wexford, a coastal county of south-east Ireland (Figs 1 and 2) occupies three of those areas, HA11 (the Rivers Owenavarragh, Inch and minor coastal river catchments), HA12 (the River Slaney catchment) and HA13 (the Rivers Corock and Bridgetown coastal catchment). Murray *et al.* (2013, 2014, 2015), document records of 94 species of Chironomidae in County Wexford. HA12, which includes parts of the adjacent Counties Carlow, Kilkenny and Wicklow, has records of 96 species. Hydrometric Areas 11 and 13, both located entirely within the county boundary of Wexford, have records of 14 and 30 species respectively. Recent collections of Chironomidae at six locations in Hydrometric Areas 11 and 12, County Wexford, yielded new and additional records that are reported here.

Collection sites and methods

Collections were made at six sites, details of which are given in Table 1.

Sites in Hydrometric Area 11

Site 1. A stream at the "Wishing well" along a recreational woodland pathway in the grounds of Wells House, Kilnamanagh. This is a shallow first order stream leading to, and from the well. Pupal exuviae were collected exclusively in the stream.

Site 2. An exposed cattle drinking trough in the field adjacent to the childrens playground at Wells House, Kilnamanagh. Pupal exuviae were scooped from the water surface of the trough.

Site 3. A man-made water feature at the "Pirates Cove", an activity centre at Courtown. This structure provides a variety of interconnecting exposed aquatic habitats – cascades, hygropetric trickles and pools. Collections of pupal exuviae were largely taken from pool areas below the cascades and trickles with the likelihood that exuviae obtained could have derived from adults emerging from different habitats.

Sites in Hydrometric Area 12

Site 4. A shallow stream and pond along a recreational pathway at the Irish National Heritage Park, Ferrycarrig. Collections here were made from the stream that flows through woodland above the pond and at the small outlet from the pond.

Site 5. A groundwater-fed pond at Ballyroe, approximately 200m x 100m, that is surrounded for the most part by marginal emergent vegetation. Access to this pond was restricted to an area along the adjacent roadside where emergent vegetation was absent.

Site 6. Roadside stream at the bridge on the road from Curracloe to Screen at its junction with the minor road from Glenbough. This stream is mostly bordered by trees and bushes that form a canopy over the channel. Collections were made at an exposed shallow riffle region immediately upstream of the bridge.

Methods

Records are derived from examination of collections of chironomid pupal exuviae obtained by skimming the water surface of ponds or backwater regions of small streams with a fine mesh net. Samples obtained were preserved in the field in 70% alcohol. Aliquots of bulk samples were examined under low power microscopy and pupal exuviae were removed. Slide preparations of exuviae were made using Euparol as mountant with species determinations from Langton and Visser (2003).

The following abbreviations are used: Pe - pupal exuviae; HA – Hydrometric Area (singular); HAs – Hydrometric Areas (plural); IRG - Irish Grid Reference.

Results and comments on species found

The species recorded are listed in Table 2. Thirty three species were recorded in three

subfamilies with three species in the subfamily Tanypodinae and 15 species each in the subfamilies Orthocladiinae and Chironominae. In the following text information on Irish distribution records of Tanypodinae is taken from Murray *et al.* (2013), of Orthocladiinae from Murray *et al.* (2014) and of Chironominae from Murray *et al.* (2015).

Additional and new records of Chironomidae in County Wexford

Subfamily TANYPODINAE

Three species of Tanypodinae are identified, each at different sites, that are first records for County Wexford. Two are new records for HA12 and one for HA11.

***Guttipelopia guttipennis* (van der Wulp, 1861) New to Wexford and HA 12**

Exuviae and a single pharate ♂of this species were collected from Site 3, the roadside groundwater-fed pond at Ballyroe. Larvae of *Guttipelopia* are commonly reported from small ponds and there are only two prior records of *G. guttipennis* in Ireland, the first from specimens collected in July 1973 at Doolough (HA 22), a small groundwater fed lough on the Muckross Peninsula, Killarney, County Kerry that was reported by Douglas and Murray (1980). The second record of this species came from collections in 2009 by Environmental Protection Agency field research officers at Ballyscanlan Reservoir (HA 16), near Tramore, County Waterford (Murray *et al*., 2013). The current record is new both for the County Wexford and HA 12.

***Macropelopia nebulosa* (Meigen, 1804) New to Wexford and HA 11**

Macropelopia nebulosa, collected at Site 2, a cattle drinking trough at Wells House estate in HA 11, has a widespread distribution in Ireland with almost 200 records from 22 counties. This, however, is the first record of the species from County Wexford and Hydrometric Area 11.

***Zavrelimyia* (*Zavrelimyia*) *barbatipes* (Kieffer, 1911) New to Wexford and HA 12**

Two exuviae of *Zavrelimyia barbatipes* were present in the collection at Site 6, a small stream at Ballyhowbeg. The species is common in parts of Ireland but the majority of the 37 existing records are from 11 counties in northern, western and southwestern areas. To date there is only one record from the southeast in the adjoining HA 15 on the River Nore at Norelands Bridge, County Kilkenny.

Subfamily ORTHOCLADIINAE

Fifteen species of Orthocladiinae in nine genera were present in the samples, seven species are new records for County Wexford while 13 are new for HA 11 and one is new for HA12.

***Brillia bifida* (Kieffer, 1909) New to HA 11**

Exuviae and larvae of *Brillia bifida* were present in samples from two sites, Site 1, the stream at the "wishing well" in the grounds of Wells House in HA 11 and Site 4, the stream/pond at the

Irish National Heritage Park. *B. bifida* is very commonly found in Ireland and has a widespread distribution with records existing from over 130 locations in 33 HAs and 23 counties. The species has been collected at nine locations previously in County Wexford but the record at Wells House is the first for HA 11.

***Cricotopus* (*Cricotopus*) *bicinctus* (Meigen, 1818) New to HA 11**

Cricotopus bicinctus is widespread in Ireland with records from 30 counties and 32 HAs. It has been previously found at five sites in County Wexford but the record from Site 3, at Courtown, is the first finding of the species in HA 11.

***Cricotopus* (*Cricotopus*) *trifascia* Edwards, 1929 New to HA 11**

Cricotopus trifascia is commonly found in Ireland though it is not as widespread as *C. bicinctus.* Records exist from 23 counties and 23 HAs. It has been previously found at two sites in County Wexford in HA 12 on the River Slaney but the record from Courtown, at Site 3, is the first record of the species in HA 11.

***Eukiefferiella brevicalcar* (Kieffer, 1911) New to Wexford and HA 11**

There are sporadic records of *Eukiefferiella brevicalcar* in Ireland from 21 locations mostly in rivers in the north, west and south-western regions. The new record at Site 1, from the stream in the grounds of Wells House, extends its known distribution to Wexford and HA 11 in the south-east.

***Orthocladius* (*Eudactylocladius*) *fuscimanus* (Kieffer, 1908) New to HA 11**

Orthocladius (*Eudactylocladius*) *fuscimanus* is known from 31 locations in 15 counties, including Wexford, in twelve HAs. Larvae are typical denizens of hygropetric habitats and the new record from HA 11 at Site 3, the man-made cascading water feature in at Courtown, is not unexpected.

***Orthocladius* (*Orthocladius*) *glabripennis* (Goetghebuer, 1921) New to Wexford and HA 11**

This species has been sporadically recorded in Ireland with records from 12 locations in six counties and nine HAs mostly west of the Shannon. The new record for County Wexford and HA11 at Site 3, Courtown, extends its known distribution to the east coast.

***Orthocladius* (*Orthocladius*) *rubicundus* (Meigen, 1818)**

Orthocladius (*Orthocladius*) *rubicundus*, found at Site 3 in a pool below a water cascade, is widely distributed and abundant in Irish rivers with records from 173 locations in 30 HAs in 26 counties, including four previous records from Wexford, one in HA 11 and three in HA 12.

***Parametriocnemus stylatus* (Spärck, 1923) New to HA 11**

This species is widespread in Ireland and is commonly encountered in rivers and some lakes. There are existing records from 189 locations in 25 counties and 33 HAs including five previous records from Wexford, all in HA 12. *P. stylatus* was found at two sites, Site 1 which is a first record for HA11, and Site 6 at Ballyhow which is an additional record for HA 12.

***Paratrichocladius rufiventris* (Meigen, 1830) New to HA 11**

Paratrichocladius rufiventris was found at Site 3 and is a new record for HA 11 although it is already known in Wexford from a single collection in HA 12 from a tributary of the River Sow, at Garylough, Screen. The species is common in Ireland with records from 71 locations in 20 HA and 20 counties.

***Psectrocladius* (*Psectrocladius*) *psilopterus* (Kieffer, 1906) New to Wexford and HA11**

Psectrocladius psilopterus is a commonly found species in Ireland with records from 118 locations in 24 HAs and 18 counties. Most existing records are from lakes with some from slow flowing lotic waters. The record from Site 3 is a new record for County Wexford and HA11.

***Rheocricotopus* (*Psilocricotopus*) *atripes* (Kieffer, 1913) New to Wexford and HA11**

Rheocricotopus atripes has been rarely found in Ireland and records exist from only five locations in five HAs in four counties. The record documented here from Site 1 at Wells House is a first for Wexford, HA 11 and the southeast of the country.

***Rheocricotopus* (*P.*) *glabricollis* (Meigen, 1830) New to Wexford and HA 11**

Rheocricotopus glabricollis is a rare species in Ireland with previous records from only four locations in three HAs in three counties, Cork, Kerry and Meath. The record from Site 1 at Wells House Estate is a first for Wexford, HA11 and for the southeast of the country.

***Rheocricotopus* (*Rheocricotopus*) *effusus* (Walker, 1856) New to Wexford and HA 11**

Irish records of *Rheocricotopus effusus* are intermittent and it has been previously documented at 24 locations in 13 HAs in 11 counties. Although records exist from counties Cork (HA 20) and Tipperary (HA 20), it has not been recorded in the southeast and the record at Site 1 at Wells House is new for County Wexford and HA 11.

***Smittia contingens* (Walker, 1856) New to Wexford and HA 12**

Existing Irish records of this species are from four counties and six HAs in nine dispersed locations in the north, west, east and southwest of the country. The new record in HA 12 from the Irish National Heritage Park at Ferrycarrig, extends its known distribution to the southeast of the country.

***Synorthocladius semivirens* (Kieffer, 1909) New to HA 11**

This is the most widespread and commonly encountered species in lakes, pools, rivers and streams in Ireland with records from 419 locations in 35 HAs and 28 counties. It is already on record for County Wexford but the record from the artificial water feature at Site 3, Courtown, is a first for HA 11.

Subfamily CHIRONOMINAE

Fifteen species of Chironominae are reported, nine from the Tribe Chironomini (six new records for County Wexford, three new for HA11 and four new for HA 12) and six from the

Tribe Tanytarsini (four new for Wexford, two new for HA 11 and four new for HA 12)

Tribe Chironomini

***Dicrotendipes notatus* (Meigen, 1818) New to Wexford and HA 11**

Previous Irish records of *Dicrotendipes notatus* are primarily from lakes and ponds at 16 locations and 9 HAs in seven counties. However, one of those records is from an animal drinking trough in County Meath – a habitat similar to that of the new record for Wexford and HA 11 at Site 2 in the Wells House Estate.

***Glyptotendipes* (*Glyptotendipes*) *pallens* (Meigen, 1804) New to Wexford, HA11 and HA12**

Pupal exuviae of *Glyptotendipes pallens* were collected at Sites 2 and 5 in HA 11 and HA 12 respectively. The species is well represented in Ireland and is known from 67 locations in 22 HA in 21counties. While there are no previous records from Wexford, or HA 11 and HA 12, it has been recorded in the south-east at Belle Lake (HA 17) and at Ballyscanlan Reservoir (HA16), Tramore, County Waterford.

***Glyptotendipes* (*G.*) *paripes* (Edwards, 1929) New to Wexford and HA12**

Glyptotendipes paripes is common in Ireland and is previously on record from 94 locations and 22 HA's in 15 counties, predominantly in northern, midland and western regions of the country. There are a few records from the south-west (Counties Cork and Kerry) but the collection at Site 6 Ballyhowbeg extends its known distribution to Wexford and HA 12 in the south-east.

***Microtendipes chloris* (Meigen, 1818)**

Microtendipes chloris is commonly distributed in Ireland with existing records in a variety of habitats from 76 locations and 27 HAs in 21 counties. It has been previously reported from Wexford from a small stream in HA 12 near Garylough, approximately 3km southwest of the present record at Site 6, Ballyroe Pond.

***Parachironomus gracilor* (Kieffer, 1918) New to Wexford and HA12**

Parachironomus gracilor is widespread in Ireland and is known from lakes and ponds from 105 locations and 28 HA's in 22 counties. The record from Site 5, Ballyroe pond is new for Wexford and HA 12 but earlier records exist from the adjoining HA 16 at Ballyscanlan Reservoir, Tramore, County Waterford,

***Paracladopelma camptolabis* (Kieffer, 1913) New to Wexford**

Although *Paracladopelma camptolabis* is widely distributed in Ireland, with records from 68 locations and 27 HAs in 23 counties there are no previous records from Wexford. However, the record from Site 4 is not new for HA 12 since three records exist from the River Slaney catchment (HA 12) upstream in Counties Wicklow and Carlow.

***Paratendipes albimanus* (Meigen, 1818) New to HA 12**

Paratendipes albimanus, present in the collections at Site 4, is widely distributed in Ireland

with records from 96 locations in 24 HAs and 24 counties, including one from HA 13 (Fig. 2) adjoining and south of HA 12.

***Polypedilum* (*Pentapedilum*) *sordens* (van der Wulp, 1874)**

Polypedilum sordens, is widely distributed in Ireland with records from 115 locations in 29 HAs and 24 counties, including one from HA 12 at Edermine Bridge, south of Enniscorthy. The collection of the species at Site 4 is only the second record for Wexford.

***Polypedilum* (*Polypedilum) nubeculosum* (Meigen, 1804) New to Wexford**

Polypedilum nubeculosum, is a common species in Ireland with records from 78 locations in 25 HAs and 18 counties. There are existing records of the species in HA 12 one from the River Derry at Balisland and the River Slaney at Kilmurry in County Wicklow. The collection of the species at Site 4 is the first record for Wexford.

Tribe Tanytarsini

***Micropsectra lindrothi* Goetghebuer, 1931 New to HA11**

Micropsectra lindrothi is a common species in Ireland found at 57 locations and 20 HAs in 21 counties in streams, shallow ponds and the littoral zone of lakes. Until now there is just a single record of the species in County Wexford from HA 13. The record from Courtown is new for HA 11.

***Micropsectra notescens* (Walker, 1856) New to Wexford and HA12**

There are records of *Micropsectra notescens* from 47 locations and 15 HAs in 12 counties but to date there none from south east Ireland. The species is regarded as typical for springs and streams. The record from the stream at Site 4 in the National Heritage Park at Ferrycarrig is a first for County Wexford and HA12.

***Micropsectra pallidula* (Meigen, 1830) New to HA11**

This is a common species in springs, streams and small lakes in Ireland with existing records from 109 locations and 26 HAs in 25 counties. There are three previous records from County Wexford and HA 12 one from the River Boro at Enniscorthy and two from the River Slaney at Clomahon and Edermine Bridge. The record from the stream at Site 1, Wells House, is a first for HA11.

***Paratanytarsus bituberculatus* (Edwards, 1929) New to Wexford and HA12**

Existing Irish records of *Paratanytarsus bituberculatus* are exclusively from lakes or ponds at 21 locations and 11 HAs in 11 counties. The species has been recorded in the adjacent County Waterford in HA 16 at Ballyscanlan reservoir, Tramore, but its occurrence at Ballyroe pond, Site 5, is the first record of the species from Wexford and HA 12.

***Tanytarsus ejuncidus* (Walker, 1856) New to Wexford and HA12**

There are records of *Tanytarsus ejuncidus* from 26 locations in 11 HAs in 13 counties. The species has been documented from six locations along the River Nore (HA 15) flowing through

parts of Counties Tipperary, Laois and Kilkenny, the record from the stream at Site 4 in the National Heritage Park at Ferrycarrig is a first for County Wexford and HA12.

***Tanytarsus palettaris* Verneaux, 1969 New to Wexford and HA12**

There are only eight previous Irish records of *Tanytarsus palettaris,* from five HA's in six counties. Four of these records are from HA 15 on the River Nore from where *T. ejuncidus* was also recorded. The record from the stream at Site 4 in the National Heritage Park at Ferrycarrig is a first for County Wexford and HA 12.

Summary

The collections of Chironomidae reported here yielded 33 species of which 20 are first records for County Wexford, 18 are first records for HA11 and 11 are first records for HA12. Combining these results with existing Chironomidae species data gives revised known totals of 114 species in County Wexford, 107 species in HA12 and 32 species in HA11.

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TABLE 1. Site numbers, Hydrometric Area, Irish Grid Reference, habitat, location and dates of sampling where Chironomidae were obtained in County Wexford.

Site	HA	IGR	Habitat	Location	Date
1	11	T117430	Stream	Wells House, Kilnamanagh	10 May 2017
2	11	T124432	Trough	Wells House, Kilnamanagh	10 May 2017
3	11	T196561	Water feature	Pirates Cove, Courtown	11 May 2017
4	12	T010225	Stream/pond	Heritage Park, Ferrycarrig	9 May 2017
5	12	T098326	Pond	Ballyroe	9 May 2017
6	12	T084293	Stream	Ballyhow, Glenbough	9 May 2017

TABLE 2. Species of Chironomidae recorded from six sites in County Wexford. Site details are given in Table 1. New records for County Wexford are denoted by a plus symbol (+); new Hydrometric Area (HA) records are indicated by an asterisk (*).

Taxon	Site(s)	HA
Subfamily Tanypodinae		
+*Guttipelopia guttipennis* (van der Wulp, 1861)	5	*12
+*Macropelopia nebulosa* (Meigen, 1804)	2	*11
+*Zavrelimyia* (*Zavrelimyia*) *barbatipes* (Kieffer, 1911)	6	*12
Subfamily Orthocladiinae		
Brillia bifida (Kieffer, 1909)	1, 4	*11, 12
Cricotopus (*Cricotopus*) *bicinctus* (Meigen, 1818)	3	*11
Cricotopus (*Cricotopus*) *trifascia* Edwards, 1929	3	*11
+*Eukiefferiella brevicalcar* (Kieffer, 1911)	1	*11
Orthocladius (*Eudactylocladius*) *fuscimanus* (Kieffer, 1908)	3	*11
+*Orthocladius* (*Orthocladius*) *glabripennis* (Goetghebuer, 1921)	3	*11
Orthocladius (*Orthocladius*) *rubicundus* (Meigen, 1818)	3	11
Parametriocnemus stylatus (Spärck, 1923)	1,6	*11, 12
Paratrichocladius rufiventris (Meigen, 1830)	3	*11
+*Psectrocladius* (*Psectrocladius*) *psilopterus* (Kieffer, 1906)	3	*11
+Rheocricotopus (*Psilocricotopus*) atripes (Kieffer, 1913)	1	*11
+*Rheocricotopus* (*P.*) *glabricollis* (Meigen, 1830)	1	*11
+*Rheocricotopus* (*Rheocricotopus*) *effusus* (Walker, 1856)	1	*11
+*Smittia contingens* (Walker, 1856)	4	*12
Synorthocladius semivirens (Kieffer, 1909)	3	*11

TABLE 2 (continued).

Subfamily Chironominae tribe Chironomini		
+*Dicrotendipes notatus* (Meigen, 1818)	2	*11
+*Glyptotendipes* (*Glyptotendipes*) *pallens* (Meigen, 1804)	3, 5	*11, *12
+*Glyptotendipes* (*Glyptotendipes*) *paripes* (Edwards, 1929)	6	*12
Microtendipes chloris (Meigen, 1818)	5	12
+*Parachironomus gracilor* (Kieffer, 1918)	5	*12
+*Paracladopelma camptolabis* (Kieffer, 1913)	4	12
Paratendipes albimanus (Meigen, 1818)	4	*12
Polypedilum (*Pentapedilum*) *sordens* (van der Wulp, 1874)	4	12
+*Polypedilum* (*Polypedilum) nubeculosum* (Meigen, 1804)	4	12
Subfamily Chironominae tribe Tanytarsini		
Micropsectra lindrothi Goetghebuer, 1931	3	*11
+*Micropsectra notescens* (Walker, 1856)	4	*12
Micropsectra pallidula (Meigen, 1830)	1	*11
+*Paratanytarsus bituberculatus* (Edwards, 1929)	5	*12
+*Tanytarsus ejuncidus* (Walker, 1856)	4	*12
+*Tanytarsus palettaris* Verneaux, 1969	4	*12

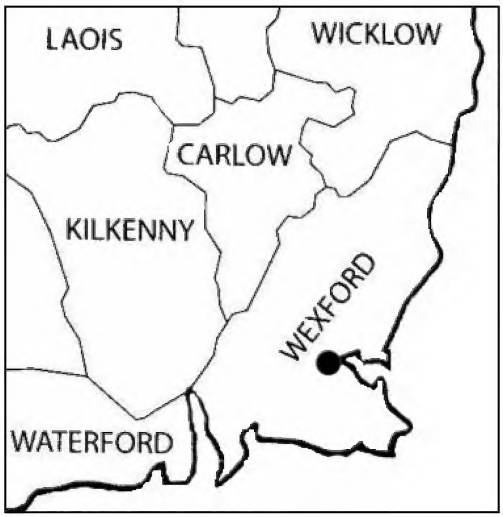

FIGURE 1. The location of County Wexford in south east Ireland.

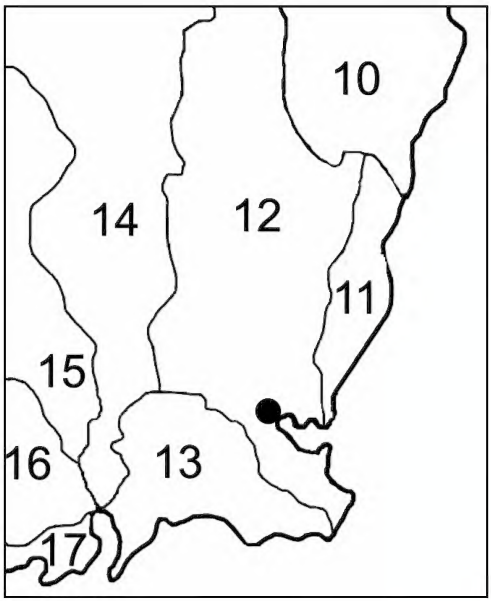

FIGURE 2. The relevant Hydrometric Areas.

LIMNEPHILUS HIRSUTUS, *LIMNEPHILUS IGNAVUS* AND *CERACLEA ALBIMACULA* (TRICHOPTERA): THREE SPECIES NEW TO NORTHERN IRELAND ALONG WITH SOME OTHER RECORDS FROM LOUGH NA TROSK, COUNTY ANTRIM

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Abstract

The caddisflies (Trichoptera) *Limnephilus hirsutus* (Pictet, 1834), *Limnephilus ignavus* McLachlan, 1865 (Limnephilidae) and *Ceraclea albimacula* (Rambur, 1842) (Leptoceridae) are added to the fauna of Northern Ireland. Some other interesting records are noted.

Key words: Trichoptera, caddisflies, *Limnephilus hirsutus*, *Limnephilus ignavus*, *Ceraclea albimacula*, Northern Ireland, additions, Antrim, Garron Plateau.

Introduction

Cathal McNaughton ran light-traps on the Garron Plateau, County Antrim and sent samples of the caddisflies to the senior author for identification. This material was augmented by net and hand-collecting on the Plateau. Three species were discovered new to Northern Ireland and other interesting records were also noted. Additional caddisfly data from the Plateau will be found in O'Connor, McNaughton and Langton (2017) and O'Connor and O'Connor (2017).

The Garron Plateau is a 'table' of volcanic basalt rock, stretching from central Ballymena to the coast at Garron Point and is one of the most extensive areas of intact upland blanket bog in Northern Ireland. The peatland complex is composed of a series of raised and flushed peat bog units and a number of oligotrophic lakes. The site occurs over basalt rocks, and where the peats are thinner, localised flushing by mineral-enriched water results in the formation of alkaline fen vegetation. Although there are many such flushes, their total area is relatively small, since the flushes are generally very small in extent. Nevertheless a combination of good quality and geographical position make this habitat very important. Because of this importance, the Plateau is a Designated Special Area of Conservation (SAC) (Anon., 2017a). This paper reports on some recent finds at one of the Plateau lakes - Lough na Trosk. This lake sits in a basin below some basaltic cliffs at about 290m altitude and has an alkaline pH (Anon., 2017b) (Fig. 7).

The new Northern Ireland records were identified using Malicky (2004) and Barnard and Ross (2012). Distributional and ecological data are from O'Connor (2015). Voucher material has been retained in the senior author's collection.

The new records

LIMNEPHILIDAE

***Limnephilus hirsutus* (Pictet, 1834) New to Northern Ireland (Fig. 1)**

ANTRIM: Lough na Trosk (D2719), ♀ 1 August 2017, light-trapped and ♀ 14 August 2017, collected from vegetation, Cathal McNaughton.

Limnephilus hirsutus is widely distributed in Ireland and it is surprising therefore that these are the first records from Northern Ireland. The species is a seepage specialist with the adults dispersing widely. The Plateau provides ample suitable larval habitats.

***Limnephilus ignavus* McLachlan, 1865 New to Northern Ireland (Fig. 2)**

ANTRIM: Lough na Trosk (D2719), 2♂♂ 5 August 2017, light-trapped and ♂ 7 August 2017, collected from vegetation, Cathal McNaughton.

Limnephilus ignavus is a local Irish species. The larvae occur in flowing marshes and bog pools.

***Limnephilus nigriceps* (Zetterstedt, 1840) New to County Antrim (Fig. 3)**

ANTRIM: Lough na Trosk (D2719), ♀ 5 August 2017, 23♂♂2♀♀ 13 September 2017, light-trapped, Cathal McNaughton.

Limnephilus nigriceps is a local Irish species. Although recorded by Johnson (1893) from Northern Ireland over a hundred years ago, there are still few records from the area. The larvae live in lakes, ponds and pools in bogs.

***Limnephilus vittatus* (Fabricius, 1798) New to County Antrim (Figs 4, 8 and 9)**

ANTRIM: Lough na Trosk (D2719), ♂ 1 September 2017 and ♂3♀♀ 3 September 2017, collected from vegetation, Cathal McNaughton.

Although *Limnephilus vittatus* is widely distributed in Ireland, the species has yet to be recorded from most of Northern Ireland.

***Halesus radiatus* (Curtis, 1834) New to County Antrim (Fig. 5)**

ANTRIM: Lough na Trosk (D2719), ♂ 18 August 2017, ♀ 30 August 2017 and ♂ 3 September 2017, collected from vegetation, Cathal McNaughton.

Halesus radiatus is common and widely distributed in Ireland. The larvae occur in lakes, ponds, rivers and streams.

LEPTOCERIDAE

***Ceraclea albimacula* (Rambur, 1842) New to Northern Ireland (Fig. 6)**

ANTRIM: Lough na Trosk (D2719), ♂ 1 August 2017 and ♂ 5 August 2017, collected from vegetation, Cathal McNaughton.

It is surprising that this widely distributed species has not previously been found in Northern Ireland. The larvae normally live in rivers and large streams where they consume freshwater sponges (Porifera).

Acknowledgement

The distribution maps were prepared using DMAP and the authors are grateful to Dr Alan Morton for supplying the relevant programme.

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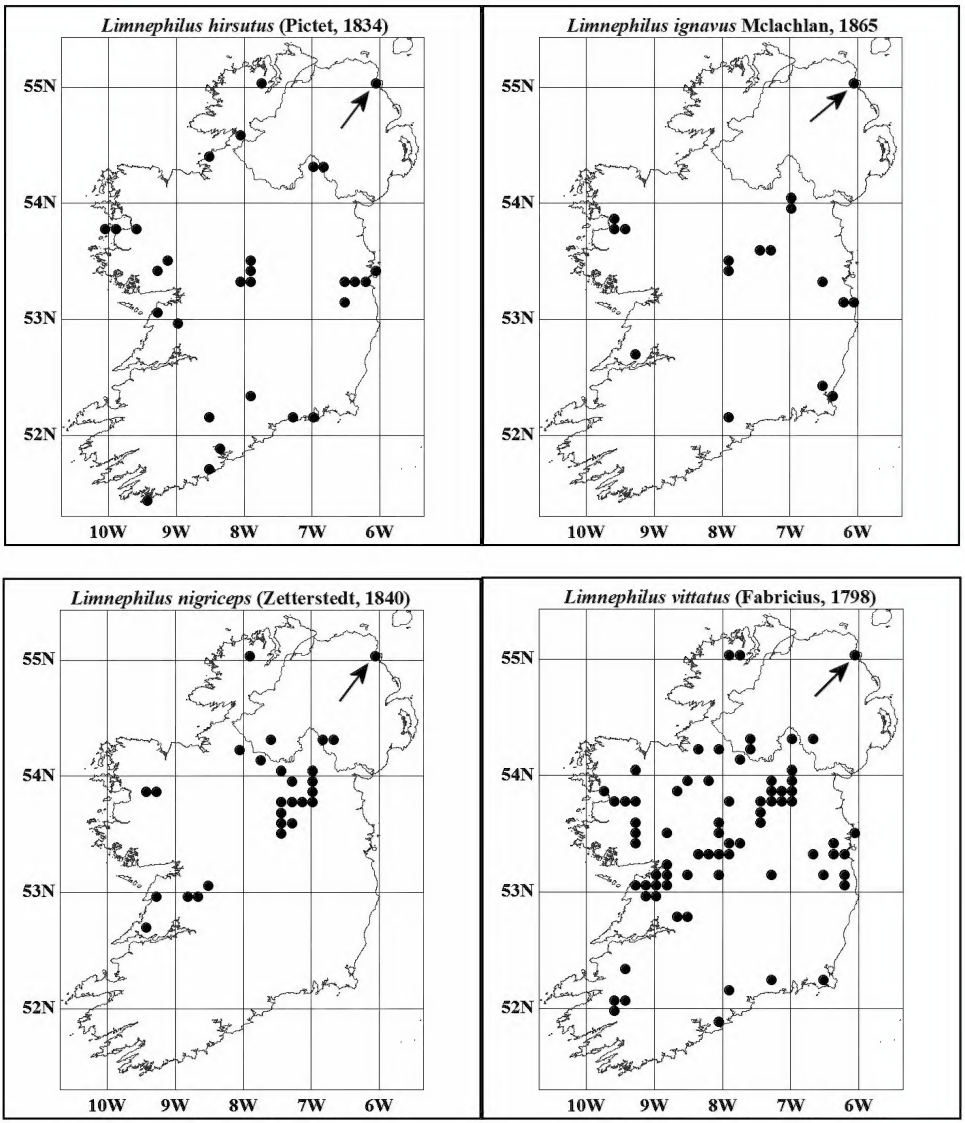
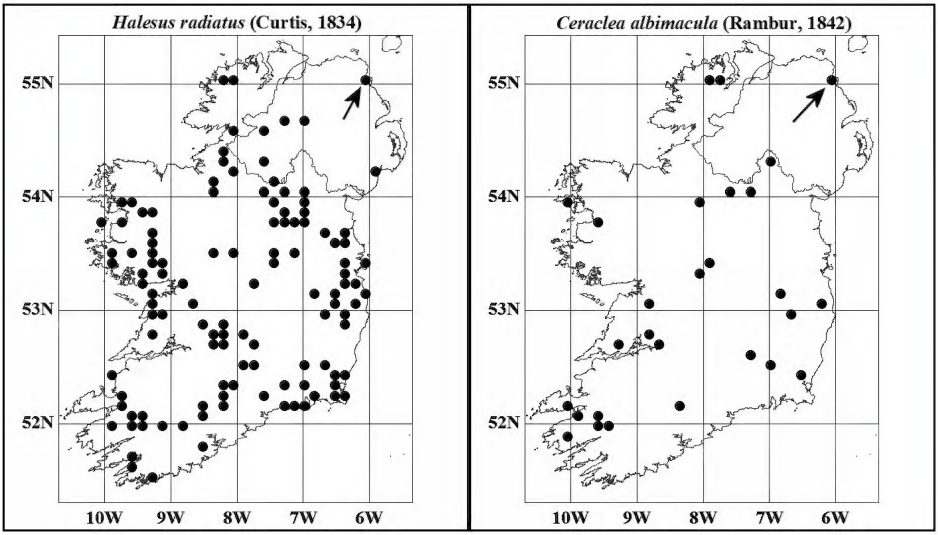
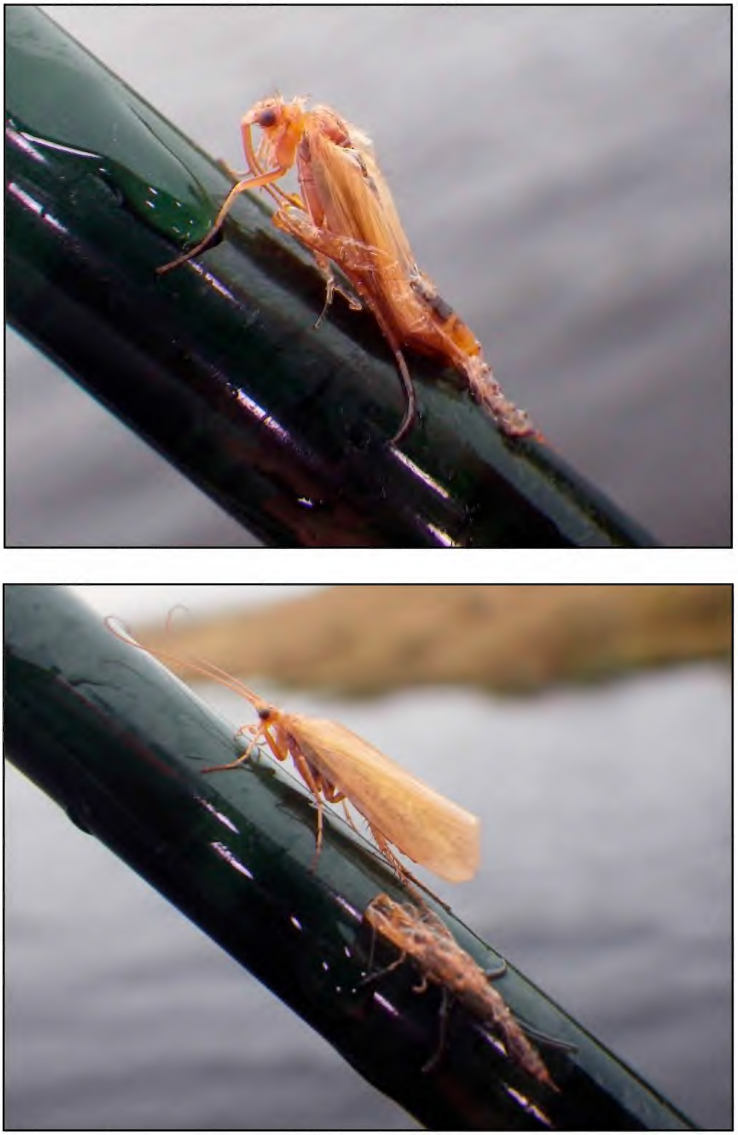


FIGURES 1-4. The known Irish distributions of *Limnephilus hirsutus* (Pictet, 1834), *Limnephilus ignavus* McLachlan, 1865, *Limnephilus nigriceps* (Zetterstedt, 1840) and *Limnephilus vittatus* (Fabricius, 1798).



FIGURES 5-6. The known Irish distributions of *Halesus radiatus* (Curtis, 1834) and *Ceraclea albimacula* (Rambur, 1842).

FIGURE 7. Lough na Trosk, County Antrim. Photograph © Cathal McNaughton.



FIGURES 8-9. The emergence of an adult of *Limnephilus vittatus* at Lough na Trosk on the evening of 3 September 2017. The specimen developed colouration typical of the species on the following day. Photographs © Cathal McNaughton.

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GLOSSOSOMA CONFORMIS, *HYDROPSYCHE CONTUBERNALIS* AND *AGRYPNIA VARIA* (TRICHOPTERA): THREE SPECIES OF CADDISFLY NEW TO NORTHERN IRELAND, WITH A CHECKLIST OF RECORDED SPECIES

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Abstract

The caddisflies (Trichoptera) *Glossosoma conformis* Neboiss, 1963 (Glossosomatidae), *Hydropsyche contubernalis* McLachlan, 1865 (Hydropsychidae) and *Agrypnia varia* (Fabricius, 1793) (Phryganeidae) are added to the fauna of Northern Ireland. A checklist of the 106 known species is given. *Oligotricha striata* (Linnaeus, 1758) is deleted.

Key words: Trichoptera, caddisflies, *Glossosoma conformis*, *Hydropsyche contubernalis*, *Agrypnia varia*, Northern Ireland, checklist, additions, deletion.

Introduction

Although Northern Ireland was treated as an integral part of the island of Ireland for the purpose of mapping the distribution of the Irish caddisflies (Trichoptera) by O'Connor (2015), this work was careful to show the international border as Northern Ireland has been given as a separate region in Fauna Europaea <https://fauna-eu.org>. It is useful therefore to combine both approaches in this paper. As a result, three species are added here to the fauna of Northern Ireland while showing the records in an all island context. A checklist of the known species is also given (Appendix 1). Altogether 109 species have now been recorded in Northern Ireland compared with 151 species for the whole island. To-date, no species have been discovered which are not found in the rest of Ireland.

One species, *Oligotricha striata* (Linnaeus, 1758), needs to be deleted from the Northern Ireland list given in Fauna Europaea (Malicky, 2014). This phryganeid is a very rare species in Ireland, only known from three specimens and none of these were taken in Northern Ireland (O'Connor, 2015). The mistake arises from confusion due to changes in nomenclature (see Gullefors and Barnard, 2009). *Oligotricha striata* was originally known as *Neuronia ruficrus*

(Scopoli, 1763) with *Phryganea bipunctata* Retzius, 1783 as *Phryganea striata* Linnaeus, 1758 in King (1888) and King and Halbert (1910). *P. striata* was first recorded from Northern Ireland in these publications and that occurrence should have been updated to that of *P. bipunctata* and not *O. striata*.

The new Northern Ireland records were identified using Macan (1973), Malicky (2004) and Barnard and Ross (2012). Voucher material has been deposited in the National Museum of Ireland – Natural History, Dublin.

The new records

GLOSSOSOMATIDAE

***Glossosoma conformis* Neboiss, 1963 (Figs 1, 4 and 6)**

ANTRIM: Parkmore (D1821), a tributary of the Glenariff River, ♂ 8 July 2017; Glenariff River (D2020), upper reaches, 2♂♂4♀♀ 6 July 2017. All collected by C. McNaughton and determined by J. P. O'Connor.

Glossosoma conformis is a relatively rare species in Ireland. The larvae inhabit flowing waters ranging from streams to rivers but require a stony substratum.

HYDROPSYCHIDAE

***Hydropsyche contubernalis* McLachlan, 1865 (Fig. 2)**

LONDONDERRY (DERRY): Coleraine (C8530), suburban garden, ♀ 20 August 2002. Collected and determined by P. H. Langton, confirmed by J. P. O'Connor.

PHL has only once come across this river caddisfly when there was a continuous swarm of adults over his whole garden for one day. There were no sign of the species the day before or the day afterwards. The River Bann is only some 50m away, although separated from the garden by a steep wooded escarpment with trees of 10m high or more. The swarm was perhaps blown over on a day of mass emergence.

The net-spinning larvae of *Hydropsyche contubernalis* occur in rivers. Until now, there were no records beyond 54°N in Ireland.

PHRYGANEIDAE

***Agrypnia varia* (Fabricius, 1793) (Figs 3, 5 and 7)**

ANTRIM: Lough Fine, Garron Plateau (D2520), 4♂♂ 11 July 2017. Collected by C. McNaughton and determined by J. P. O'Connor.

Although *Agrypnia varia* was considered widely distributed in Ireland by O'Connor (2015), the species was only recently recorded from south-east Ireland (O'Connor and O'Connor, 2016). It is interesting therefore that this caddisfly has now also been found in the north-east.

The predacious larvae occur in bogs, pools, weedy ponds along with reed beds and the sheltered rocky shores of lakes.

Acknowledgement

The distribution maps were prepared using DMAP and the authors are grateful to Dr Alan Morton for supplying the relevant programme.

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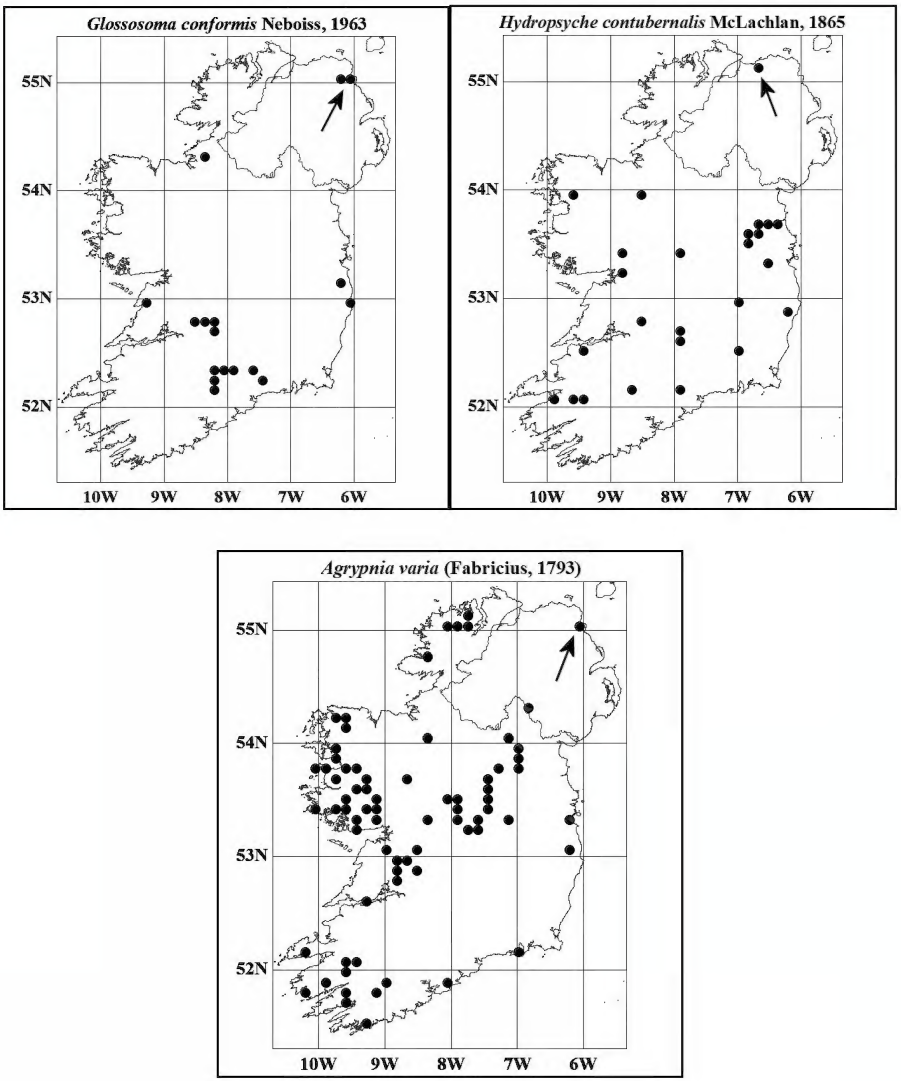

FIGURES 1-3. The known Irish distributions of *Glossosoma conformis* Neboiss, 1963, *Hydropsyche contubernalis* McLachlan, 1865 and *Agrypnia varia* (Fabricius, 1793). The Northern Ireland records are indicated by arrows.

FIGURES 4-5. Above: the upper reaches of the Glenariff River, County Antrim. Below: Lough Fine, Garron Plateau, County Antrim. Photographs © Cathal McNaughton.

FIGURES 6-7. Above: ♂ *Glossosoma conformis* Neboiss from the upper reaches of the Glenariff River, County Antrim. Below: ♂ *Agrypnia varia* (Fabricius) from Lough Fine, Garron Plateau, County Antrim. Photographs © Cathal McNaughton.

APPENDIX 1. A checklist of the Trichoptera recorded from Northern Ireland. Unless otherwise stated, the data are from O'Connor (2015).

RHYACOPHILIDAE

1. *Rhyacophila dorsalis* (Curtis, 1834)
2. *Rhyacophila munda* McLachlan, 1862

GLOSSOSOMATIDAE

3. *Agapetus fuscipes* Curtis, 1834
4. *Agapetus ochripes* Curtis, 1834
5. *Glossosoma boltoni* Curtis, 1834
6. *Glossosoma conformis* Neboiss, 1963
Added in this paper.

HYDROPTILIDAE

7. *Agraylea multipunctata* Curtis, 1834
8. *Agraylea sexmaculata* Curtis, 1834
Added by O'Connor and O'Connor (in press).
9. *Allotrichia pallicornis* (Eaton, 1873)
10. *Hydroptila angulata* Mosely, 1922
11. *Hydroptila cornuta* Mosely, 1922
12. *Hydroptila forcipata* (Eaton, 1873)
13. *Hydroptila pulchricornis* Pictet, 1834
14. *Hydroptila sparsa* Curtis, 1834
15. *Hydroptila tineoides* Dalman, 1819
16. *Ithytrichia lamellaris* Eaton, 1873
17. *Oxyethira flavicornis* (Pictet, 1834)

PHILOPOTAMIDAE

18. *Chimarra marginata* (Linnaeus, 1761)
19. *Philopotamus montanus* (Donovan, 1813)
20. *Wormaldia occipitalis* (Pictet, 1834)

ECNOMIDAE

21. *Ecnomus tenellus* (Rambur, 1842)

POLYCENTROPODIDAE

22. *Cyrnus flavidus* McLachlan, 1864
23. *Cyrnus trimaculatus* (Curtis, 1834)
24. *Holocentropus picicornis* (Stephens, 1836)
25. *Neureclipsis bimaculata* (Linnaeus, 1758)
26. *Plectrocemia conspersa* (Curtis, 1834)
27. *Plectrocnemia geniculata* McLachlan, 1871
28. *Polycentropus flavomaculatus* (Pictet, 1834)
29. *Polycentropus irroratus* (Curtis, 1835)
30. *Polycentropus kingi* McLachlan, 1881

PSYCHOMYIIDAE

31. *Lype phaeopa* (Stephens, 1836)
32. *Psychomyia fragilis* (Pictet, 1834)
33. *Psychomyia pusilla* (Fabricius, 1781)
34. *Tinodes maclachlani* Kimmins, 1966
35. *Tinodes waeneri* (Linnaeus, 1758)

HYDROPSYCHIDAE

36. *Cheumatopsyche lepida* (Pictet, 1834)
37. *Diplectrona felix* McLachlan, 1878
38. *Hydropsyche angustipennis* (Curtis, 1834)
39. *Hydropsyche contubernalis* McLachlan, 1865
Added in this paper.
40. *Hydropsyche instabilis* (Curtis, 1834)
41. *Hydropsyche pellucidula* (Curtis, 1834)
42. *Hydropsyche siltalai* Döhler, 1963

PHRYGANEIDAE

43. *Agrypnia obsoleta* (Hagen, 1864)
44. *Agrypnia pagetana* Curtis, 1835
45. *Agrypnia varia* (Fabricius, 1793)
Added in this paper.
[*Oligotricha striata* (Linnaeus, 1758)
Synonymy *Neuronia ruficrus* (Scopoli, 1763)]
This species was erroneously recorded from Northern Ireland on the Fauna Europaea website

(Malicky, 2014). The record refers to *Phryganea bipunctata* Retzius, 1783 (misidentification: *Phryganea striata* Linnaeus, 1758).

46. *Phryganea bipunctata* Retzius, 1783

47. *Phryganea grandis* Linnaeus, 1758

GOERIDAE

48. *Goera pilosa* (Fabricius, 1775)

49. *Silo nigricornis* (Pictet, 1834)

50. *Silo pallipes* (Fabricius, 1781)

LEPIDOSTOMATIDAE

51. *Crunoecia irrorata* (Curtis, 1834)

52. *Lepidostoma basale* (Kolenati, 1848)

53. *Lepidostoma hirtum* (Fabricius, 1775)

APATANIIDAE

54. *Apatania muliebris* McLachlan, 1866
Added by O'Connor (2017).

55. *Apatania wallengreni* McLachlan, 1871

LIMNEPHILIDAE

56. *Drusus annulatus* (Stephens, 1837)

57. *Ecclisopteryx dalecarlica* Kolenati, 1848

58. *Chaetopteryx villosa* (Fabricius, 1798)

59. *Anabolia nervosa* (Curtis, 1834)

60. *Glyphotaelius pellucidus* (Retzius, 1783)

61. *Grammotaulius nigropunctatus* (Retzius, 1783)

62. *Limnephilus affinis* Curtis, 1834

63. *Limnephilus auricula* Curtis, 1834

64. *Limnephilus binotatus* Curtis, 1834

65. *Limnephilus centralis* Curtis, 1834

66. *Limnephilus coenosus* Curtis, 1834

67. *Limnephilus decipiens* (Kolenati, 1848)

68. *Limnephilus elegans* Curtis, 1834

69. *Limnephilus flavicornis* (Fabricius, 1787)

70. *Limnephilus hirsutus* (Pictet, 1834)

Added by O'Connor and McNaughton (2017).

71. *Limnephilus ignavus* McLachlan, 1865
Added by O'Connor and McNaughton (2017).

72. *Limnephilus incisus* Curtis, 1834

73. *Limnephilus lunatus* Curtis, 1834

74. *Limnephilus luridus* Curtis, 1834

75. *Limnephilus marmoratus* Curtis, 1834

76. *Limnephilus nigriceps* (Zetterstedt, 1840)

77. *Limnephilus rhombicus* (Linnaeus, 1758)

78. *Limnephilus sparsus* Curtis, 1834

79. *Limnephilus stigma* Curtis, 1834

80. *Limnephilus vittatus* (Fabricius, 1798)

81. *Halesus digitatus* (Schrank, 1781)

82. *Halesus radiatus* (Curtis, 1834)

83. *Micropterna lateralis* (Stephens, 1837)

84. *Micropterna sequax* McLachlan, 1875

85. *Potamophylax cingulatus* (Stephens, 1837)

86. *Potamophylax latipennis* (Curtis, 1834)

87. *Stenophylax permistus* McLachlan, 1895

SERICOSTOMATIDAE

88. *Sericostoma personatum* (Spence, 1826)

BERAEIDAE

89. *Beraea maurus* (Curtis, 1834)

90. *Beraea pullata* (Curtis, 1834)

91. *Beraeodes minutus* (Linnaeus, 1761)

ODONTOCERIDAE

92. *Odontocerum albicorne* (Scopoli, 1763)

MOLANNIDAE

93. *Molanna albicans* (Zetterstedt, 1840)

LEPTOCERIDAE

94. *Athripsodes albifrons* (Linnaeus, 1758)

95. *Athripsodes aterrimus* (Stephens, 1836)
96. *Athripsodes bilineatus* (Linnaeus, 1758)
97. *Athripsodes cinereus* (Curtis, 1834)
98. *Ceraclea albimacula* (Rambur, 1842)
Added by O'Connor and McNaughton (2017).
99. *Ceraclea dissimilis* (Stephens, 1836)
100. *Ceraclea fulva* (Rambur, 1842)
101. *Ceraclea nigronervosa* (Retzius, 1783)
102. *Ceraclea senilis* (Burmeister, 1839)
103. *Leptocerus tineiformis* Curtis, 1834
Added by O'Connor and O'Connor (in press).
104. *Mystacides azurea* (Linnaeus, 1761)
105. *Mystacides longicornis* (Linnaeus, 1758)
106. *Oecetis furva* (Rambur, 1834)
107. *Oecetis lacustris* (Pictet, 1834)
108. *Oecetis ochracea* (Curtis, 1825)
109. *Triaenodes bicolor* (Curtis, 1834)

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FURTHER DISTRIBUTIONAL AND FLIGHT-PERIOD RECORDS FOR IRISH CADDISFLIES (TRICHOPTERA)

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Abstract

New research has extended the distributions and flight-periods of many Irish caddisfly species (Trichoptera). Numerous new county records are included. The known ranges of a large number of species have been greatly increased. The expansion in the range of *Leptocerus tineiformis* is particularly noteworthy.

Key words: Trichoptera, caddisflies, Ireland, distribution, flight-periods.

Introduction

Since the publication of previous information on the distribution of the Irish Trichoptera (O'Connor, 2015; O'Connor and O'Connor, 2016), further progress has been made in studying these insects. *Trichostegia minor* (Curtis, 1834) has been added to the Irish list while *Glossosoma conformis* Neboiss, 1963, *Agraylea sexmaculata* Curtis, 1834, *Hydropsyche contubernalis* McLachlan, 1865, *Agrypnia varia* (Fabricius, 1793), *Apatania muliebris* McLachlan, 1866, *Limnephilus hirsutus* (Pictet, 1834), *Limnephilus ignavus* McLachlan, 1865, *Ceraclea albimacula* (Rambur, 1842) and *Leptocerus tineiformis* Curtis, 1834 have been reported for the first time from Northern Ireland (O'Connor, 2017; O'Connor and McNaughton, 2017a, b; O'Connor, McNaughton, and Langton, 2017; O'Connor and O'Connor, in press). In addition, on 27 June 2017, Martin Gammell of the Galway-Mayo Institute of Technology kindly informed JPOC that a photograph of a putative Irish specimen of *Hagenella clathrata* (Kolenati, 1848) (Phryganeidae) had appeared on Facebook for identification. The adult was photographed by Tina Claffey on 22 May 2016 in wet woodlands beside Abbeyleix Bog (S4383), County Laois (Claffey personal communication, 2017) (Fig. 68). A voucher specimen for confirmation of its identity has yet to be collected. Additional discussion concerning this find will be found under the entry for ?*Hagenella clathrata* (Kolenati, 1848).

In this paper, further distributional records are presented. In addition, it has been possible to extend the known flight-periods of many species. Numerous new county records are noted. Most of the data are based on specimens taken in 2017 but some older material has also been examined. Unless otherwise stated, specimens were identified by the senior author using the

following keys: Wallace, Wallace and Philipson (2003), Malicky (2004), Barnard and Ross (2012), Waringer and Graf (2011). The Irish counties are shown (Fig. 62).

RHYACOPHILDAE

***Rhyacophila dorsalis* (Curtis, 1834)**

DUBLIN: River Liffey opposite the Strawberry Hall, Strawberry Beds (O0735), ♂ 4 April 2017, M. A. O'Connor.

The above specimen was taken ten days before the earliest published date of 14 April (O'Connor, 2015)

GLOSSOSOMATIDAE

***Agapetus delicatulus* McLachlan, 1884 New to County Laois (Fig. 1)**

LAOIS: stream near Vicarstown (N5803), 2♂♂ 3 August 1986, swept from vegetation beside the stream, J. P. O'Connor.

***Agapetus fuscipes* Curtis, 1834 New to County Laois (Fig. 2)**

LAOIS: stream near Vicarstown (N5803), 2♂♂ 3 August 1986, swept from vegetation beside the stream, J. P. O'Connor.

***Glossosoma conformis* Neboiss, 1963 (Fig. 3)**

Cathal McNaughton discovered *Glossosoma conformis* new to Northern Ireland at two sites on the Glenariff River (D1821, D2020), County Antrim, in July 2017 (O'Connor, McNaughton and Langton, 2017).

HYDROPTILIDAE

***Agraylea sexmaculata* Curtis, 1834 (Figs 4 and 75)**

Agraylea sexmaculata was recently discovered at Lough Tullynagee, County Down (J4763). The species was new to Northern Ireland (O'Connor and O'Connor, in press).

***Hydroptila angulata* Mosely, 1922 New to County Donegal (Fig. 5)**

DONEGAL: Glenveagh National Park (C0323), 2♀♀ 10-30 July 1998, Malaise trap near *Salix* swamp near the Owencarrow River and Lough Beagh, M. C. D. Speight.

The Donegal record represents a major extension in the Irish range of *Hydroptila angulata*.

***Hydroptila cornuta* Mosley, 1922 New to County Kilkenny (Fig. 6)**

KILKENNY: River Nore, Inistioge (S6337), 3♂♂ 10 August 2017, swept from bankside vegetation, J. P. O'Connor and M. A. O'Connor.

TIPPERARY: River Suir, Carrick-on-Suir (S3921), 5♂♂ 17 August 2017, swept from bankside vegetation, J. P. O'Connor and M. A. O'Connor.

Previously only known in County Tipperary from Gortmore (Lough Derg).

***Hydroptila forcipata* (Eaton, 1873) New to County Derry (Londonderry) (Fig. 7)**

DERRY (LONDONDERRY): White Rocks Bay (C8840), ♂ 28 May 2017, swept at stream which drops down to the beach, Charlie McConaghy, determined by P. H. Langton.

This is the most northerly record in Ireland.

***Hydroptila martini* Marshall, 1977 New to County Laois (Fig. 8)**

KERRY: Blue Pool area, Killarney (V9786), ♀ 30 August 1987, J. P. O'Connor.

There are two males from Killarney in the Natural History Museum, London. These were collected by J. J. F. X. King in July 1887 but no precise locality was given (O'Connor, 2015). The Blue Pool male is the first localised specimen from County Kerry.

LAOIS: Abbeyleix Bog (S4383), 2♀♀ 14 July 2017, swept from beside a stream in wet woodland, M. A. O'Connor.

***Hydroptila simulans* Mosely, 1920 New to County Tipperary (Fig. 9)**

TIPPERARY: River Suir, Carrick-on-Suir (S3921), 2♂♂ 17 August 2017, swept from bankside vegetation, J. P. O'Connor and M. A. O'Connor.

Hydroptila simulans is now known from the three sister rivers of the south-east (the Barrow, Nore and Suir).

***Ithytrichia lamellaris* Eaton, 1873 New to County Laois (Fig. 10)**

LAOIS: Abbeyleix Bog (S4383), 2♀♀ 1 July 2017, light-trap 15w Actinic, Martin Gammell and Caitriona Carlin.

***Orthotrichia angustella* (McLachlan, 1865) (Fig. 11)**

KERRY: Lough Currane near Waterville (V5265), 3♂♂2♀♀ 6 August 1973, J. P. O'Connor.

To-date, this record is the most southern one in Ireland.

PHILOPOTAMIDAE

***Philopotamus montanus* (Donovan, 1813)**

CARLOW: St Mullins (S7238), 8♂♂ 14 August 2017, swept from beside a stream and waterfall, J. P. O'Connor and M. A. O'Connor.

Previously known in County Carlow from a River Slaney record in 1946.

POLYCENTROPIDAE

***Cyrnus trimaculatus* (Curtis, 1834) (Figs 12)**

ANTRIM: Glenarm River, lower river (D3014), 2♂♂ 12 July 2017, C. McNaughton; Lough Fad, Garron Plateau (D2419), ♂ 11 July 2017, C. McNaughton; Lough na Trosk, Garron Plateau (D2719), ♂ 11 July 2017, C. McNaughton.

These are the most northerly records in north-east Ireland.

***Holocentropus dubius* (Rambur, 1842) New to County Waterford (Fig. 13)**

WATERFORD: Ballyscanlan Lough (S5402), ♀ 20 June 2017 and ♂ 2 July 2017, 15w actinic light-trap, T. Bryant; Carrickavrantry Reservoir (S5502), ♀ 26 June 2017, T. Bryant.

These are the first records from south-east Ireland.

***Holocentropus picicornis* (Stephens, 1836) New to County Down (Figs 14 and 74)**

DOWN: Castlewellan Lake (J3336), ♀ 19 June 2017, swept from vegetation beside the lake, J. P. O'Connor and M. A. O'Connor.

This is the first record from north-east Ireland.

WATERFORD: Belle Lake (S6605), 2♂♂ 7 May 2017, landed on a boat on the lake, Alan Walshe.

The Waterford specimens were taken 21 days before the earliest published date of 28 May (O'Connor, 2015)

WEXFORD: Johnstown Castle, Garden Lake (T0116), ♂ 15 August 2017 and Lower Lake (T0216), 2♀♀ 15 August 2017, swept from vegetation beside the lakes, J. P. O'Connor.

***Plectrocnemia geniculata* McLachlan, 1871 (Fig. 15)**

ANTRIM: Ally Lough, Rathlin Island (D15497), ♂ 5 July 2004, collected and determined by P. H. Langton.

This is the most northerly record in Ireland.

***Polycentropus flavomaculatus* (Pictet, 1834)**

KERRY: Lough Leane, Golf Course shore, Killarney (V9291), ♀ 20 October 1994, J. P. O'Connor.

The above specimen was taken 20 days after the latest published date of 30 September (O'Connor, 2015).

***Polycentropus irroratus* (Curtis, 1835) New to Counties Carlow and Laois (Fig. 16)**

CARLOW: St Mullins (S7238), ♂ 14 August 2017, swept from beside a stream and waterfall, M. A. O'Connor.

LAOIS: Abbeyleix Bog (S4383), ♀ 14 July 2017, swept from vegetation beside a stream in wet woodland, M. A. O'Connor.

PSYCHOMYIIDAE

***Lype phaeopa* (Stephens, 1836) New to County Down (Fig. 17)**

DOWN: Castlewellan Lake (J3336), 2♂♂♀ 18-19 June 2017, swept from vegetation beside the lake, J. P. O'Connor and M. A. O'Connor.

This is the first record from north-east Ireland.

***Lype reducta* (Hagen, 1868) (Figs 18 and 74)**

WEXFORD: Johnstown Castle, Lower Lake (T0216), ♀ 15 August 2017, swept from vegetation, J. P. O'Connor.

There are few records of adults in Ireland. A female was previously taken at nearby Curracloe.

***Tinodes maclachlani* Kimmins, 1966 New to County Sligo (Fig. 19)**

SLIGO: Knocknarea Glen near Strandhill (G6333), larva 4 March 1985, collected from trickles on a cliff face, J. P. O'Connor.

WEXFORD: Johnstown Castle, stream exiting Garden Lake (T0116), ♂♀ 15 August 2017, J. P. O'Connor.

***Tinodes maculicornis* (Pictet, 1834) New to County Tipperary (Fig. 20)**

TIPPERARY: The Hatchery, Kilmastulla River (R6867), 3♀♀ 13 September 1976, M. A. O'Connor.

***Tinodes waeneri* (Linnaeus, 1758) (Fig. 21)**

ANTRIM: Dall River, Cushendall golf course (D2327), 4♂♂♀ 18 July 2017; Glenarm River, lower river (D3014), 2♂♂ 12 July 2017; Lough Fad, Garron Plateau (D2419), ♂ 11 July 2017; Lough na Trosk, Garron Plateau (D2719), ♂♀ 11 July 2017. All C. McNaughton.

These are the most northerly records in north-east Ireland.

HYDROPSYCHIDAE

***Hydropsyche angustipennis* (Curtis, 1834) (Fig. 22)**

WATERFORD: Knockaderry Reservoir (S4906), 18♂♂ 13 August 2017, the males were swarming behind a tree trunk at the reservoir's outflow, J. P. O'Connor.

There is an old record from near Lismore, County Waterford (King, 1888).

***Hydropsyche contubernalis* McLachlan, 1865 (Fig. 23)**

Discovered in Coleraine (C8530), County Derry (Londonderry) by Peter Langton (O'Connor, McNaughton and Langton, 2017).

***Hydropsyche instabilis* (Curtis, 1834) (Fig. 24)**

ANTRIM: Clogh River (D1314), ♀ 21 June 2017; Glenariff River (D2122), ♂ 20 June 2017, (D2020), 3♂♂2♀♀ 6 July 2017; River Dall (D2327), ♀ 23 September 2017. All C. McNaughton.

These are the first adult records from north-east Ireland.

PHRYGANEIDAE

***Agrypnia obsoleta* (Hagen, 1864) New to County Antrim (Figs 25 and 69)**

ANTRIM: Manor House, Rathlin Island (D1451), ♂ 11 August 2007, collected and determined

by P. H. Langton; Lough na Trosk, Garron Plateau (D2719), light-trap 3♂♂ 1 August 2017, C. McNaughton.

***Agrypnia varia* (Fabricius, 1793) (Fig. 26)**

In July 2017, Cathal McNaughton discovered *Agrypnia varia* new to Northern Ireland at Lough Fine on the Garron Plateau (D2520), County Antrim (O'Connor, McNaughton and Langton, 2017).

[?*Hagenella clathrata* (Kolenati, 1848) requiring confirmation (Figs 27 and 68)

LAOIS: photographed in wet woodlands beside Abbeyleix Bog (S4383), adult 22 May 2016, T. Claffey.

Despite the photograph showing that the Abbeyleix specimen has testaceous legs, very characteristic of *Hagenella clathrata*, the slim possibility exists that the individual could be the widely distributed European *Oligostomis reticulata* (Linnaeus, 1761) although this species is reported to have pitchy-black legs (McLachlan, 1874-1884). However, if this is a reliable means of separation for photographed specimens, then there are clearly misidentified specimens of *Hagenella clathrata* under the name *Oligostomis reticulata* on Google images. Examination of the genitalia of a collected Irish specimen will resolve this problem.]

***Phryganea bipunctata* Retzius, 1783 New to Derry (Londonderry) (Fig. 28)**

DERRY (LONDONDERRY): Binevenagh Lake (C6930), ♂ 18 May 2000, collected and determined by P. H. Langton.

The Binevenagh record is the most northerly one in Northern Ireland.

WATERFORD: Belle Lake (S6605), ♂ 7 May 2017, landed on a boat on the lake, A. Walshe.

The Waterford specimen was taken five days before the earliest published date of 12 May (O'Connor, 2015). In County Waterford, *Phryganea bipunctata* was previously only known from a larva taken in the Annestown River Valley Reserve (O'Connor, 2015).

***Phryganea grandis* Linnaeus, 1758 New to County Waterford (Fig. 29)**

WATERFORD: Ballyscanlan Lough (S5402), ♀ 20 June 2017 and ♂ 6 July 2017, 15w actinic light-trap, T. Bryant.

These are the first records from south-east Ireland.

***Trichostegia minor* (Curtis, 1834) (Fig. 30)**

Trichostegia minor was confirmed as an Irish species based on adults taken on 17 July 2016 at Mullaghboy, Lough Sheelin (N4285), County Cavan (O'Connor and McNaughton, 2017a).

GOERIDAE

***Goera pilosa* (Fabricius, 1775) New to County Down (Fig. 31)**

DOWN: Castlewellan Lake (J3336), 8♂♂ 18-19 June 2017, swept from vegetation beside the lake, J. P. O'Connor and M. A. O'Connor.

This is the first record from north-east Ireland.

WATERFORD: Belle Lake (S6605), 2♂♂2♀♀ 3 August 2016, Heath portable light-trap, J. P. O'Connor and M. A. O'Connor.

This is the first record for south Waterford.

***Silo nigricornis* (Pictet, 1834) New to County Laois (Fig. 32)**

LAOIS: stream near Vicarstown (N5803), ♂ 3 August 1986, J. P. O'Connor.

The Laois occurrence is from a large area with no previous records.

APATANIIDAE

***Apatania muliebris* McLachlan, 1866 (Fig. 33)**

A female of the parthenogenetic *Apatania muliebris* McLachlan, 1866 was taken in 2016 in a Malaise trap in a woodland area west of Toomebridge, Lough Neagh, County Derry (Londonderry) (H9790) (O'Connor, 2017). This is the most northerly Irish record.

LIMNEPHILIDAE

***Drusus annulatus* (Stephens, 1837) (Fig. 34)**

WATERFORD: Keiloge River, Carbally Church (S6401), ♂ 21 October 2016, netted by stream, T. Bryant.

The above specimen was taken 17 days after the latest published date of 4 October (O'Connor, 2015).

***Anabolia nervosa* (Curtis, 1834) New to County Limerick (Fig. 35)**

LIMERICK: Curragh Chase Forest Park (R4149), 2♂♂ 3-4 October 2016, J. Brophy.

***Glyphotaelius pellucidus* (Retzius, 1783) New to County Down (Figs 36 and 75)**

ANTRIM: Martinstown [Clogh River] (D1314), 2♀♀ 21 June 2017, C. McNaughton.

This is the most northerly Irish record.

DOWN: Lough Tullynagee (J4763), ♂ 18-19 June 2017, Heath portable light-trap in a garden overlooking the lake, J. P. O'Connor and M. A. O'Connor.

***Limnephilus affinis* Curtis, 1834**

KERRY: Lough Leane, Golf Course shore, Killarney (V9291), ♀ 20 October 1994, J. P. O'Connor.

The above specimen was taken 6 days after the latest published date of 14 October (O'Connor, 2015).

***Limnephilus auricula* Curtis, 1834 New to County Antrim (Fig. 37)**

ANTRIM: upper reaches of Glenariff River (D2020), ♀ 6 July 2017, C. McNaughton.

This Antrim record is the most northerly occurrence in north-east Ireland.

KERRY: Lough Leane, Golf Course shore, Killarney (V9291), ♀ 20 October 1994, J. P. O'Connor.

This Kerry specimen was taken eight days after the latest published date of 12 October (O'Connor, 2015).

***Limnephilus centralis* Curtis, 1834 New to County Antrim (Fig. 38)**

ANTRIM: Parkmore, tributary of Glenariff River (D1821), ♂ 8 July 2017, C. McNaughton.

There are few records of this species from Northern Ireland and this Antrim one is the most northerly occurrence in north-east Ireland.

***Limnephilus decipiens* (Kolenati, 1848) New to County Tipperary (Fig. 39)**

There were few records of Irish adults in O'Connor (2015). Since then, the following specimens have been collected.

CAVAN: Mullaghboy, Lough Sheelin (N4285), ♀ 21 May 2017, light-trap, C. McNaughton.

The Cavan specimen was taken 75 days before the earliest published date of 4 August (O'Connor, 2015).

GALWAY: Lough Corrib, Hurney's Point (M2531), 2♀♀ 25 September 2003, light-trap, K. G. M. Bond; near Castle Demense, Saint Joseph's Road, Portumna (M8404), ♀ 26 October 2016, J. Brophy.

TIPPERARY: Kilgarvan Quay, Ballinderry (R8297), *Phragmites* in Lough Derg, ♂ 27 October 2016, J. Brophy.

The Tipperary specimen was taken 25 days after the latest published date of 2 October (O'Connor, 2015).

WATERFORD: Belle Lake (S6604), ♀ 14 June 2017, on a boat on the lake, A. Walshe (O'Connor and Walshe, in press).

This was the first record from south-east Ireland.

***Limnephilus hirsutus* (Pictet, 1834) New to County Cavan (Fig. 40)**

CAVAN: Boyher (N4285), light-trap ♂ 28 July 2017, field near Lough Sheelin, C. McNaughton.

Limnephilus hirsutus is a seepage specialist and its somewhat immature habitats force the adults to disperse widely and consequently to be light-trapped. Adults were also recently discovered at Lough na Trosk (D2719), Garron Plateau, County Antrim. The species was new to Northern Ireland (O'Connor and McNaughton, 2017b).

***Limnephilus ignavus* McLachlan, 1865 (Fig. 41)**

Limnephilus ignavus was recently discovered at Lough na Trosk (D2719), Garron Plateau, County Antrim. The species was new to Northern Ireland (O'Connor and McNaughton, 2017b). It is a local species on the island but the known records show that *L. ignavus* is widely distributed.

***Limnephilus incisus* Curtis, 1834 New to County Kerry (Fig. 42)**

KERRY: River Laune exit from the Lower Lake, Killarney (V8991), swept from a flooded area beside the exit, ♂ 26 August 1987, J. P. O'Connor.

This is the first record from south-west Ireland and represents a major expansion in the known range of the species.

***Limnephilus lunatus* Curtis, 1834 (Fig. 43)**

TIPPERARY: River Suir, Carrick-on-Suir (S3921), ♀ 17 August 2017, swept from riverside vegetation, J. P. O'Connor, and M. A. O'Connor.

Although this common species has already been recorded from County Tipperary, the River Suir record occurred in a large area with no other reported occurrences.

***Limnephilus luridus* Curtis, 1834 (Fig. 44)**

ANTRIM: Parkmore, tributary of Glenariff River (D1821), 2♂♂ 3 July 2017 and ♂ 15 July 2017; Parkmore shooting range, source of Glenariff River tributary (D1819), ♂2♀♀ 5 July 2017; Garron Plateau (D2520), ♂ 11 July 2017, all C. McNaughton.

***Limnephilus nigriceps* (Zetterstedt, 1840) (Fig. 45)**

Limnephilus nigriceps was recently discovered at Lough na Trosk (D2719), Garron Plateau, County Antrim (O'Connor and McNaughton, 2017b).

***Limnephilus rhombicus* (Linnaeus, 1758) New to County Waterford (Fig. 46)**

WATERFORD: Tramore (S5701), ♂ 5 July 2017 and ♂ 9 July 2017, 125w MV Robinson light-trap, T. Bryant.

***Limnephilus sparsus* Curtis, 1834 (Fig. 47)**

ANTRIM: Breen Bridge (Inver Burn) (D3411), ♂ 16 June 2017, C. McNaughton; Parkmore (D1921), ♀ 14 June 2017, C. McNaughton.

This is the most northerly record of this common species in north-east Ireland.

***Limnephilus vittatus* (Fabricius, 1798) (Fig. 48)**

Limnephilus vittatus was recently discovered at Lough na Trosk (D2719), Garron Plateau, County Antrim (O'Connor and McNaughton, 2017b).

***Halesus radiatus* (Curtis, 1834) New to County Derry (Londonderry) (Fig. 49)**

DERRY (LONDONDERRY): Coleraine (C8530), ♂ 27 April 1998, collected and determined by P. H. Langton.

This is the first Irish record from April and also the most northerly one.

***Micropterna lateralis* (Stephens, 1837) (Fig. 50)**

ANTRIM: Dungonnell Dam near Cargan (D1917), the Ballysallagh Water exits this dam, ♀ 18 June 2017, C. McNaughton; Parkmore, tributary of Glenariff River (D1821), ♂ 15 July 2017, C. McNaughton.

These records are the most northerly occurrences in north-east Ireland.

***Micropterna sequax* McLachlan, 1875 New to County Offaly (Fig. 51)**

ANTRIM: Breen Bridge (Inver Burn) (D3411), ♂ 16 June 2017, C. McNaughton; Cushendall (D2428), 3♂♂ 7 July 2017, C. McNaughton.

The Cushendall record is the most northerly occurrence in north-east Ireland of this widely distributed species.

KERRY: Lough Leane, Killarney (V9291), larva 10 April 1973, on exposed rocky lake shore, J. P. O'Connor

The last record from Killarney was in 1887 (O'Connor, 2015).

OFFALY: Silver River, Cadamstown (N2307), ♂ 22 August 2016, J. Brophy.

***Potamophylax cingulatus* (Stephens, 1837) New to County Antrim (Fig. 52)**

ANTRIM: Ballycastle (D1240), ♂ 15 June 2017, C. McNaughton; upper reaches of Glenariff River (D2020), ♂ 6 July 2017, C. McNaughton.

These Antrim records are the most northerly occurrences in north-east Ireland. The Ballycastle one is the first June record.

GALWAY: Lough Kip River, Oguil, Moycullen (M2231), 6 larvae 21 May 2016, collected and determined M. Gammell (record from the National Biodiversity Data Centre).

This was the first record from County Galway.

***Potamophylax latipennis* (Curtis, 1834) New to County Antrim (Fig. 53)**

ANTRIM: Parkmore, tributary of Glenariff River (D1821), ♂ 3 July 2017, C. McNaughton; upper reaches of Glenariff River (D2020), ♂ 6 July 2017, C. McNaughton.

These Antrim records are the most northerly occurrences in north-east Ireland.

WATERFORD: Ballyscanlan Lough (S5402), ♂ 27 October 2016, 15w actinic light-trap, T. Bryant.

The Waterford specimen was taken 14 days after the latest published date of 13 October (O'Connor, 2015).

***Stenophylax permistus* McLachlan, 1895 (Fig. 54)**

ANTRIM: Breen Bridge (Inver Burn) (D3411), ♂ 16 June 2017, C. McNaughton.

This is the most northerly record in north-east Ireland.

BERAEIDAE

***Beraea maurus* (Curtis, 1834) New to County Sligo (Fig. 55)**

SLIGO: Knocknarea Glen near Strandhill (G6333), larva 4 March 1985, in trickles on a cliff face, J. P. O'Connor.

WEXFORD: J. F. Kennedy Park (S7219), ♂2♀♀ 25 July 2016, swept from the vegetation beside a small stream, J. P. O'Connor.

ODONTOCERIDAE

***Odontocerum albicorne* (Scopoli, 1763) New to County Kilkenny (Fig. 56)**

KILKENNY: The Coum River (S6337), where it enters the River Nore, Inistioge, ♂ 10 August 2017, swept from vegetation beside this fast-flowing river, J. P. O'Connor, and M. A. O'Connor.

LEPTOCERIDAE

***Athripsodes aterrimus* (Stephens, 1836) (Figs 57, 70 and 71)**

ANTRIM: Lough Fad, Garron Plateau (D2419), ♂ 11 July 2017, C. McNaughton; Lough na Trosk, Garron Plateau (D2719), 2♂♂♀ 11 July 2017, C. McNaughton.

The Antrim records are the most northerly occurrence in north-east Ireland.

DUBLIN: Wavin Lake (Knock Pond), Balrothery (O1960), 9♂♂3♀♀ 25 May 2017, J. P. O'Connor, M. A. O'Connor and Helen O'Connor.

The Wavin Lake specimens were taken 9 days before the earliest published date of 3 June (O'Connor, 2015).

***Ceraclea albimacula* (Rambur, 1842) (Fig. 58)**

Ceraclea albimacula was recently discovered at Lough na Trosk (D2719), Garron Plateau, County Antrim. The species was new to Northern Ireland (O'Connor and McNaughton, 2017b).

***Ceraclea dissimilis* (Stephens, 1836) (Fig. 59)**

TIPPERARY: River Suir, Carrick-on-Suir, ♂2♀♀ 17 August 2017, swept from riverside vegetation, J. P. O'Connor, and M. A. O'Connor.

Previously only known in the County Tipperary from a larva taken in a dredge in 1972 on the River Shannon at Killaloe.

***Leptocerus tineiformis* Curtis, 1834 New to Counties Dublin and Wexford (Figs 60, 70, 71, 72, 73 and 75)**

DUBLIN: Wavin Lake (Knock Pond), Balrothery (O1960), ♂3♀♀ 20 July 2017, J. P. O'Connor and M. A. O'Connor.

The specimens were swept off vegetation at Wavin Lake but near an adjoining smaller weedy pond from which they may have originated. The two water bodies are separated by a narrow causeway but connected by a pipe. Wavin Lake covers an area of approximately 10 hectares. The lake is quite shallow with an average depth of *circa* 2m, with a couple of 3.5m holes.

WEXFORD: Johnstown Castle, Castle Lake (T0216), 2♂♂7♀♀ 12 August 2017 and Garden Lake (T0116), ♀ 15 August 2017, swept from vegetation, J. P. O'Connor. The adults were very common on the Castle Lake, swarming at the lake-edge in the sunshine.

Leptocerus tineiformis was also recently discovered at Lough Tullynagee (J4763) and a nearby lake in County Down. The species was new to Northern Ireland (O'Connor and

O'Connor, in press). All three recent records are indicated (Fig. 60). Previously only known from a larva and a female, this caddisfly appears to be extending its range in Ireland.

***Mystacides azurea* (Linnaeus, 1761) (Fig. 61)**

ANTRIM: Lough Fad, Garron Plateau (D2419), ♂ 11 July 2017, C. McNaughton.

This record is the most northerly occurrence in north-east Ireland.

KERRY: Lough Leane, Golf Course shore, Killarney (V9291), 30♂♂ 20 October 1994, J. P. O'Connor.

The above specimen was taken nine days after the latest published date of 11 October (O'Connor, 2015).

***Mystacides longicornis* (Linnaeus, 1758) (Figs 62, 70 and 71)**

ANTRIM: Garron Plateau (D2520), ♂ 11 July 2017, C. McNaughton.

This record is the most northerly occurrence in north-east Ireland.

DUBLIN: Wavin Lake (Knock Pond), Balrothery (O1960), 17♂♂2♀♀ 11 May 2017 and 20♂♂3♀♀ 25 May 2017, thousands of adults were swarming on the lake, J. P. O'Connor, M. A. O'Connor and Helen O'Connor. Hundreds of adults were subsequently trapped in a Heath portable light-trap on 31 August-1 September 2017.

The 11 May specimens at Wavin Lake were taken 25 days before the earliest published date of 5 June (O'Connor, 2015).

***Oecetis furva* (Rambur, 1842) New to County Antrim (Fig. 63)**

ANTRIM: Lough Fad, Garron Plateau (D2419), ♂ 11 July 2017, C. McNaughton.

This record is the most northerly occurrence in north-east Ireland.

***Oecetis lacustris* (Pictet, 1834) New to County Antrim (Figs 64, 72, 73, 74 and 76)**

ANTRIM: Lough Fad, Garron Plateau (D2419), ♂ 11 July 2017, C. McNaughton; Lough Fine, Garron Plateau (D2520), ♂ 11 July 2017, C. McNaughton.

These records are the most northerly occurrences in north-east Ireland.

WEXFORD: Oaklands Lake (S7125), ♂ 7 August 2017, swept 4♀♀ 7-8 August 2017 and 2♂♂7♀♀ 17-18 August 2017, Heath portable light-traps, J. P. O'Connor and M. A. O'Connor.

This is the second Wexford record of *Oecetis lacustris*. The species was previously taken at the small lakes in the Johnstown Castle estate (King and Halbert, 1910). The artificial Oaklands Lake was created in Kelly's Wood, New Ross, during 1998 and 1999.

***Oecetis ochracea* (Curtis, 1825) New to Counties Antrim, Down, Dublin and Waterford (Figs 65, 70, 71, 75 and 76)**

ANTRIM: Lough Fine, Garron Plateau (D2520), 4♂♂ 11 July 2017, C. McNaughton.

The Antrim record is the most northerly occurrence in north-east Ireland.

DOWN: Lough Tullynagee (J4763), ♂ 18-19 June 2017, Heath portable light-trap, J. P. O'Connor and M. A. O'Connor.

DUBLIN: Wavin Lake (Knock Pond), Balrothery (O1960), 4♂♂ 31 August–1 September 2017, Heath portable light-trap, J. P. O'Connor and M. A. O'Connor.

This is the first record for the east of Ireland. *Mystacides longicornis* was the only other caddisfly trapped and hundreds of specimens were taken (see above for other records of this species at Wavin Lake).

WATERFORD: Knockaderry Reservoir, ♀ 13 August 2017, swept from vegetation overhanging the outflow stream, J. P. O'Connor.

This is the first record from south-east Ireland.

***Triaenodes bicolor* (Curtis, 1834) New to County Antrim (Figs 66, 70 and 71)**

ANTRIM: Ushet Lough, Rathlin Island (D1548), ♂ 5 July 2004, collected and determined P. H. Langton.

This is the most northerly record in Ireland.

DUBLIN: Wavin Lake (Knock Pond), Balrothery (O1960), ♂ 25 May 2017, J. P. O'Connor, M. A. O'Connor and Helen O'Connor.

The Dublin specimen was taken 25 days before the earliest published date of 19 June (O'Connor, 2015). In County Dublin, the species has only previously been reported from two sites on the River Liffey.

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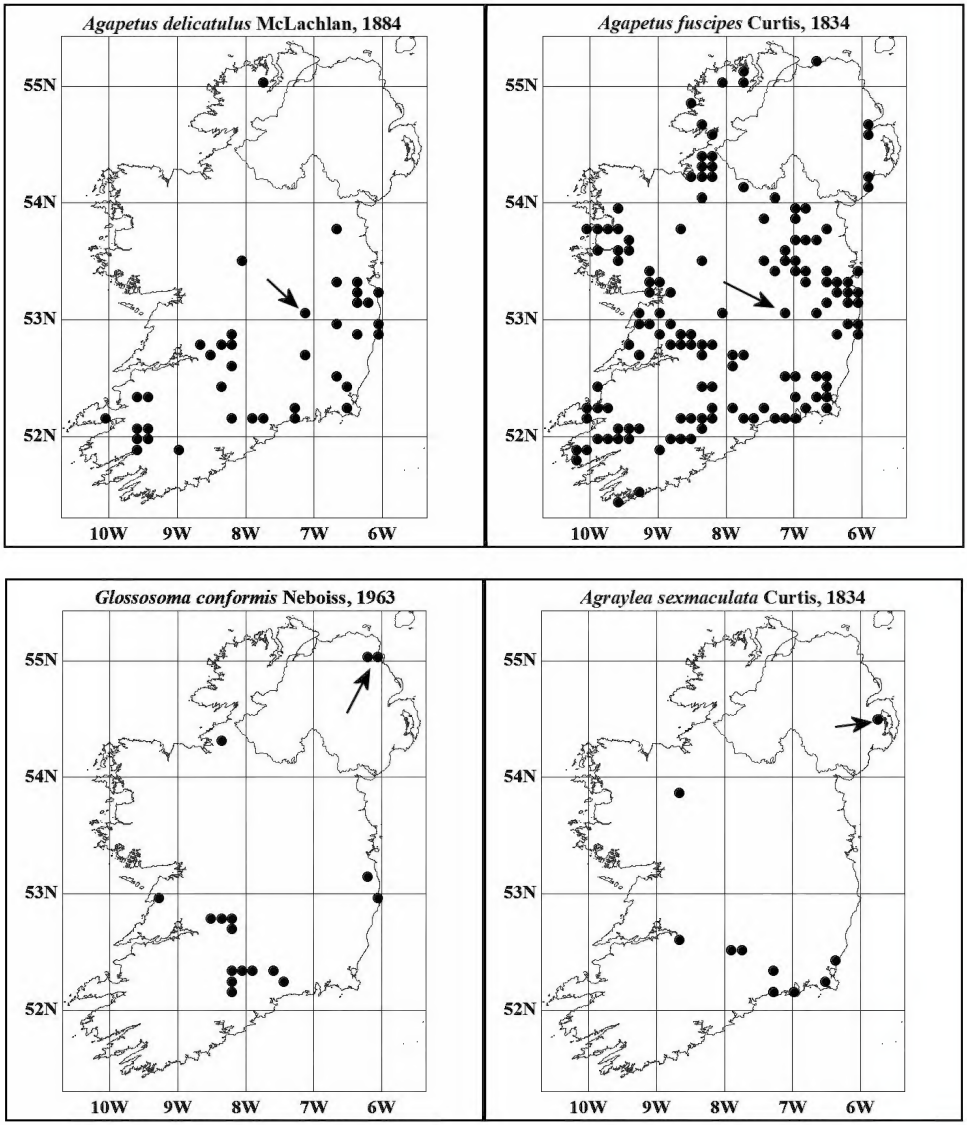
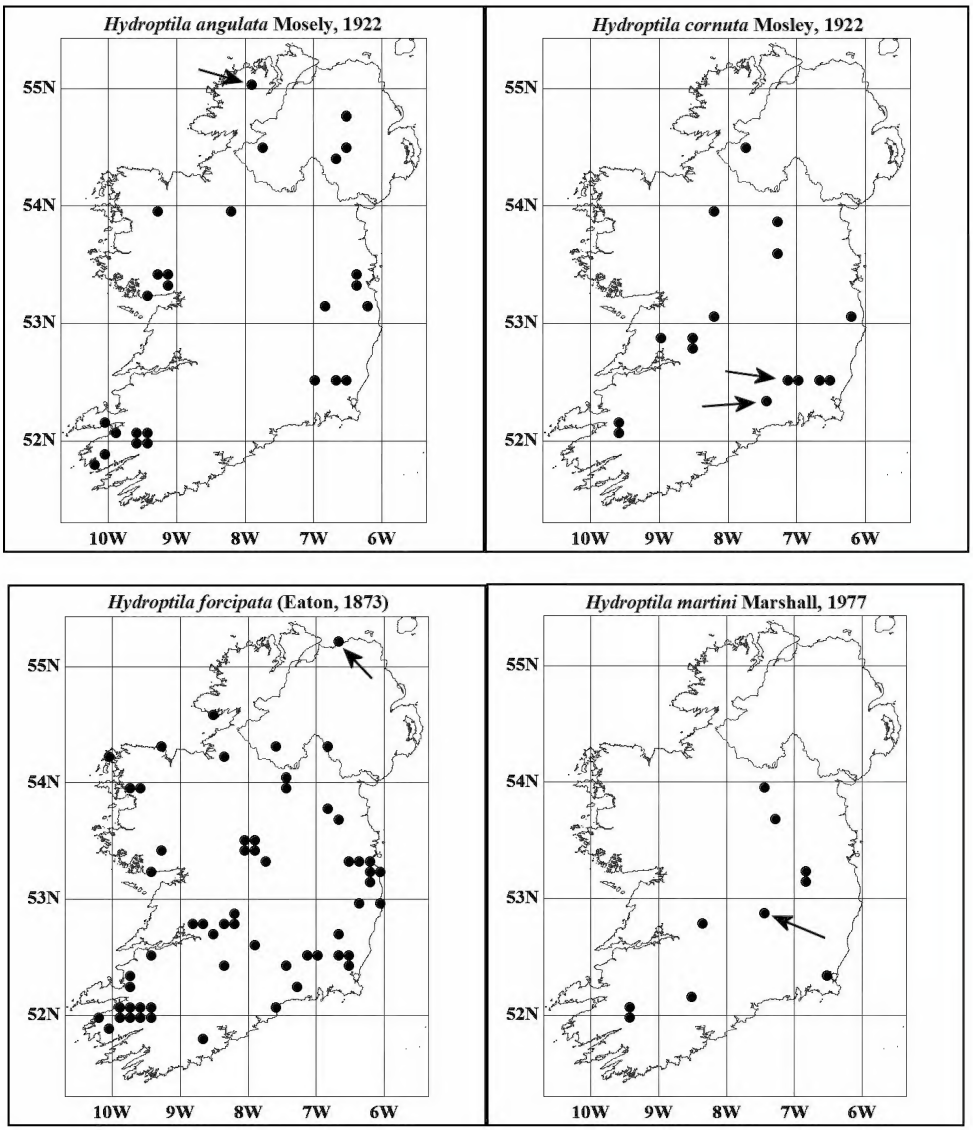
Note added in press

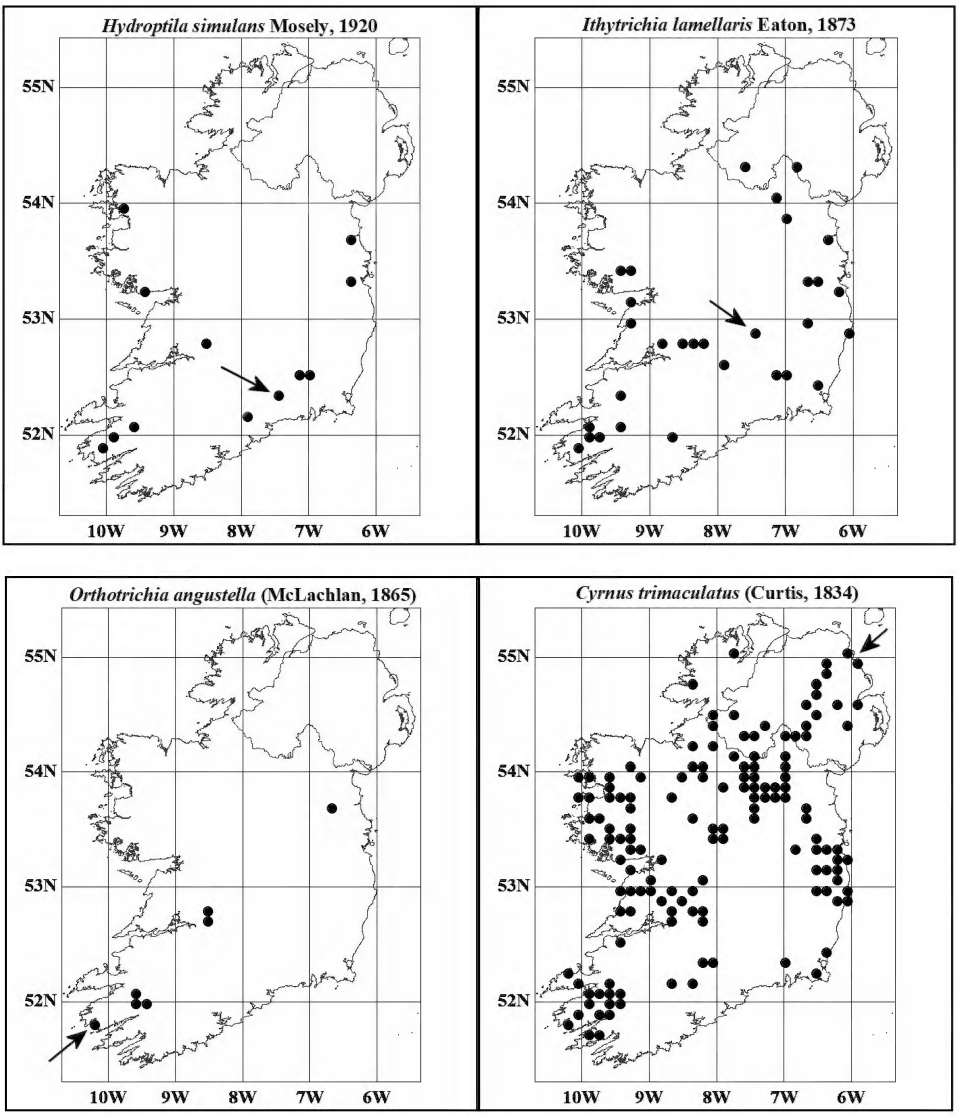
Additional distributional records for Northern Ireland, which arrived too late for inclusion in this paper, will be found in O'Connor, J. P. and McNaughton, C. (2017) Some new distributional records of caddisflies (Trichoptera) from Northern Ireland. *Bulletin of the Irish Biogeographical Society* **41**: 103-111. This paper reports on *inter alia* the discovery of two bog specialists near water-bodies on the Garron Plateau, County Antrim, i.e. *Limnephilus coenosus* Curtis (Lough Garve (D2117) and Lough na Tullig (D2420)) and *Limnephilus elegans* Curtis (near Dungonnel reservoir (D2018)).



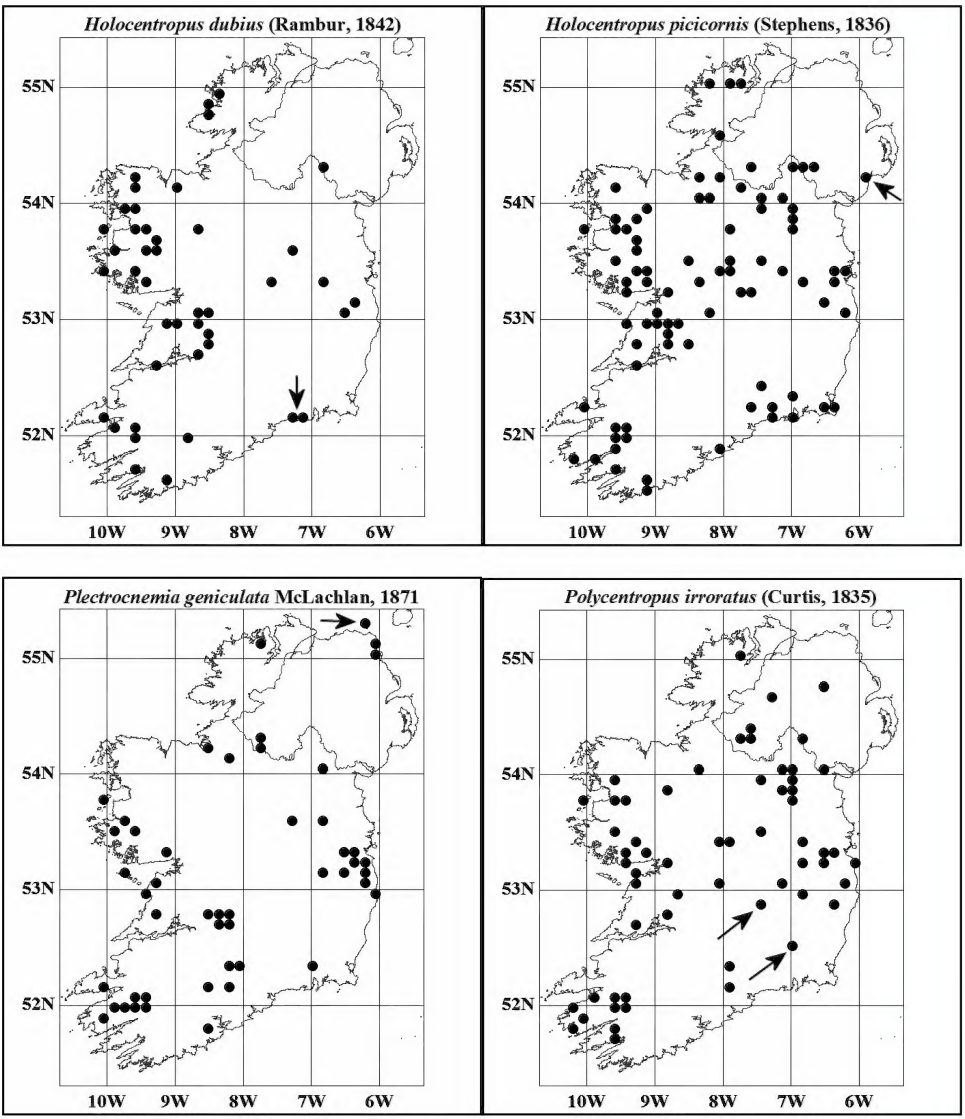
FIGURES 1-4. The known Irish distributions of *Agapetus delicatulus* McLachlan, 1884, *Agapetus fuscipes* Curtis, 1834, *Glossosoma conformis* Neboiss, 1963 and *Agraylea sexmaculata* Curtis, 1834. Notable range extensions are indicated by arrows.



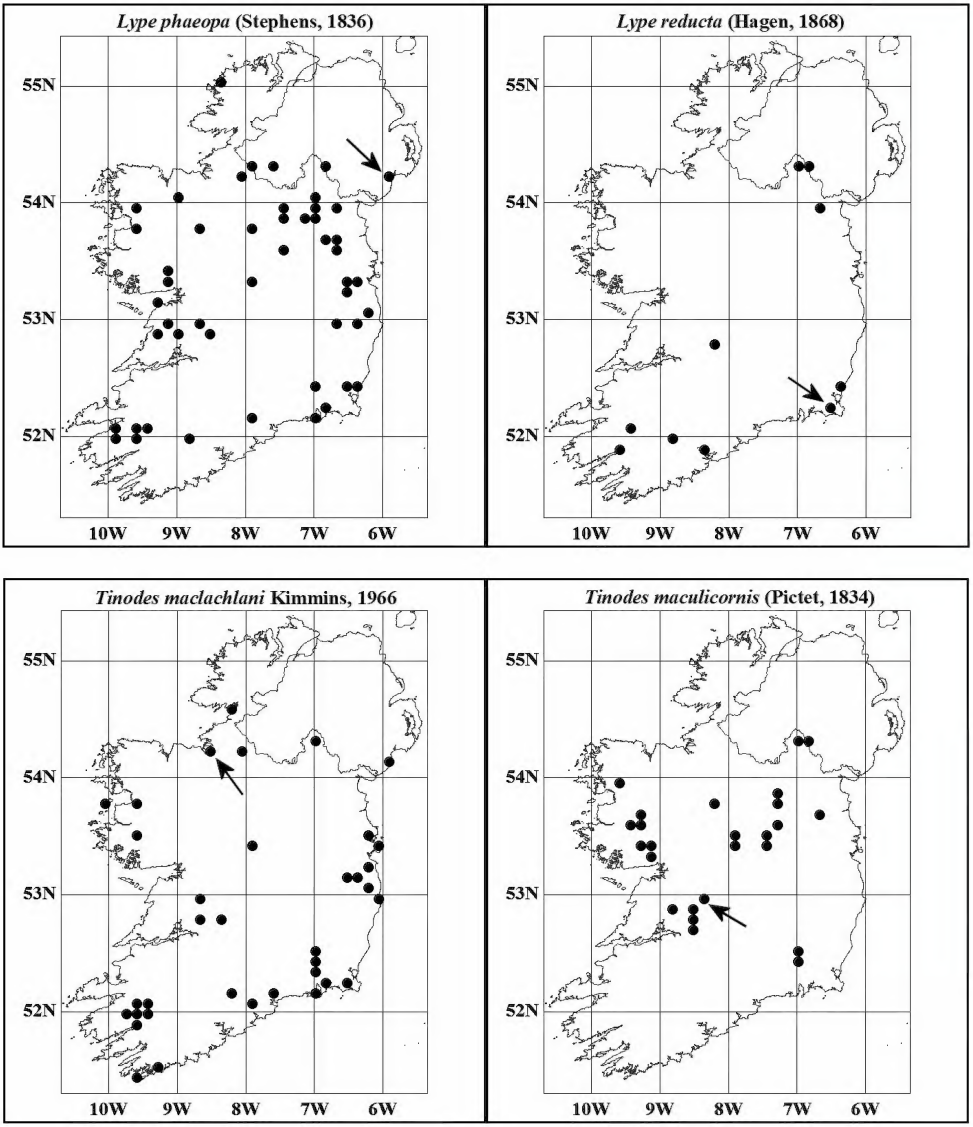
FIGURES 5-8. The known Irish distributions of *Hydroptila angulata* Mosely, 1922, *Hydroptila cornuta* Mosley, 1922, *Hydroptila forcipata* (Eaton, 1873) and *Hydroptila martini* Marshall, 1977. Notable range extensions are indicated by arrows.



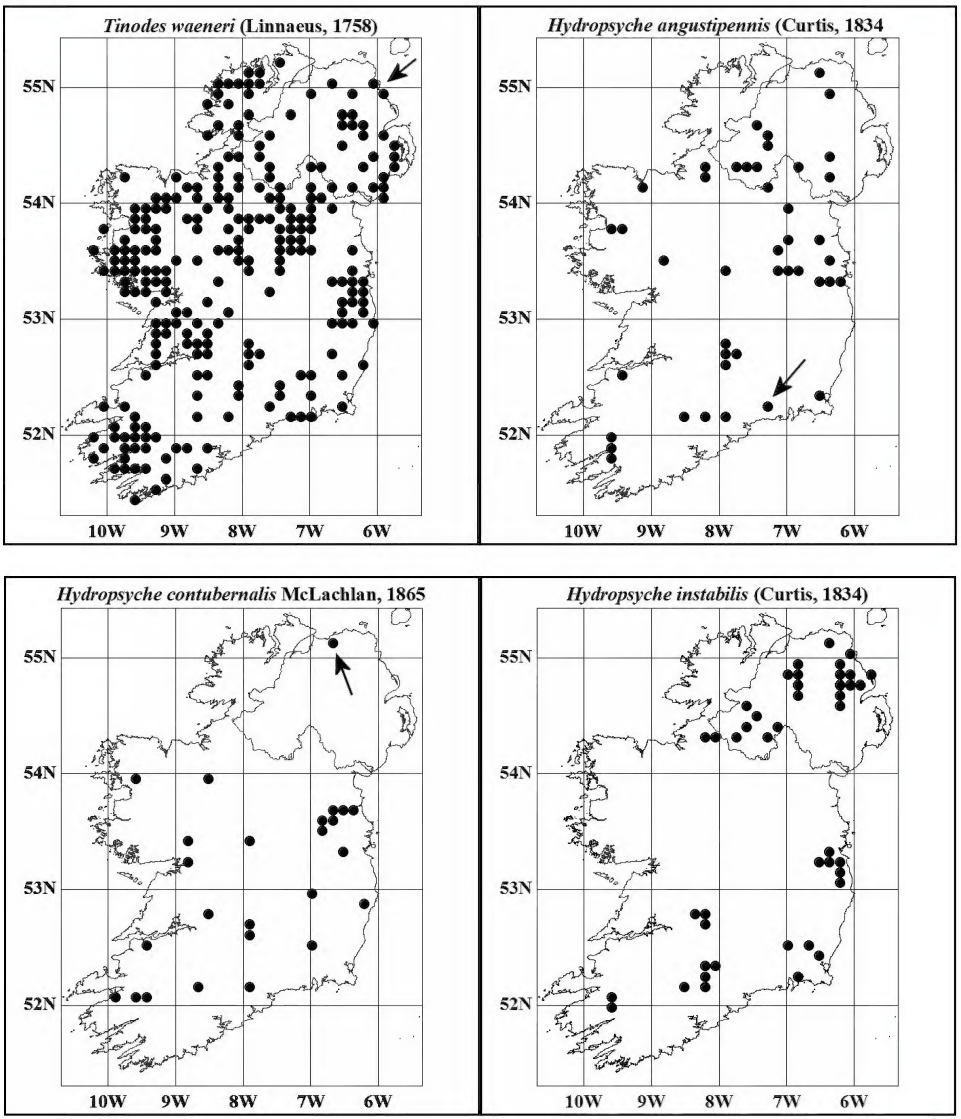
FIGURES 9-12. The known Irish distributions of *Hydroptila simulans* Mosely, 1920, *Ithytrichia lamellaris* Eaton, 1873, *Orthotrichia angustella* (McLachlan, 1865) and *Cyrnus trimaculatus* (Curtis, 1834). Notable range extensions are indicated by arrows.



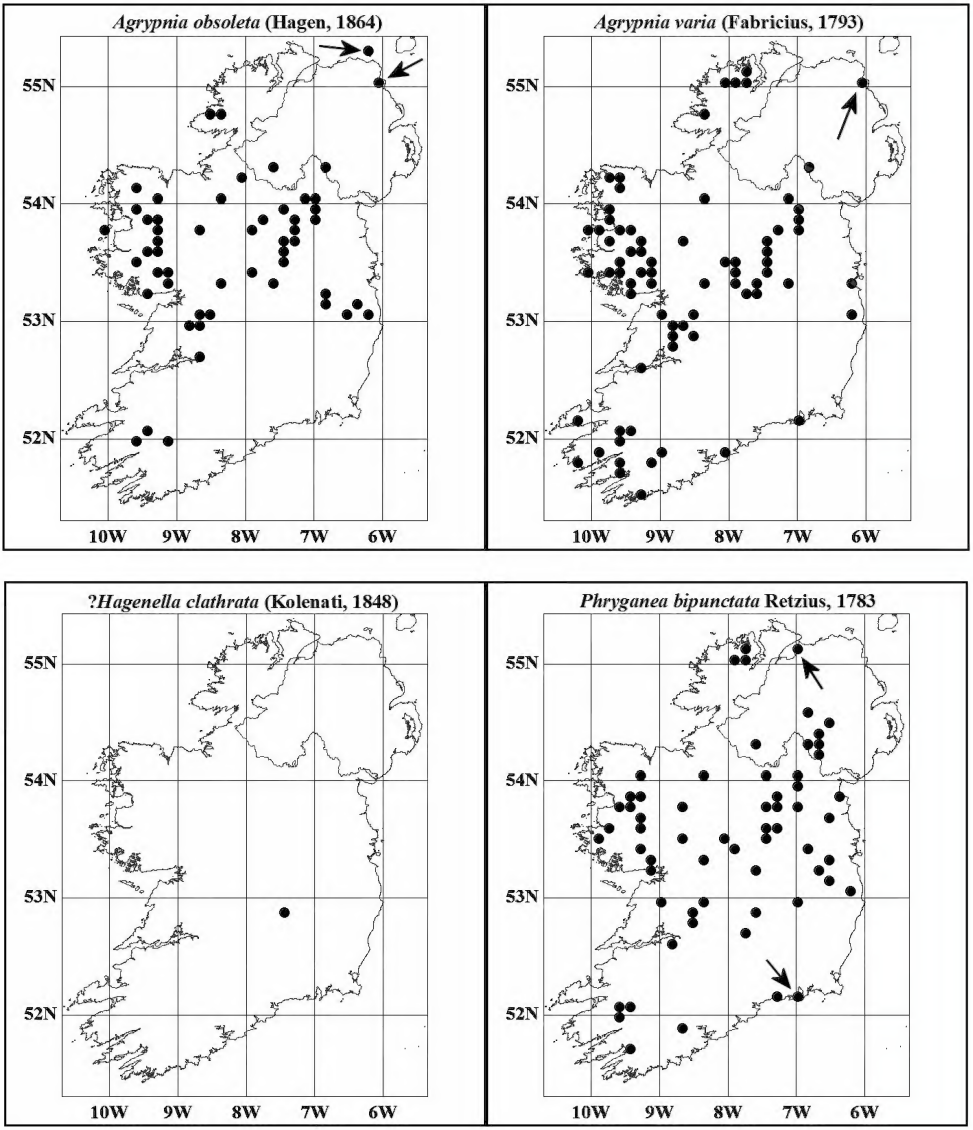
FIGURES 13-16. The known Irish distributions of *Holocentropus dubius* (Rambur, 1842), *Holocentropus picicornis* (Stephens, 1836), *Plectrocnemia geniculata* McLachlan, 1871 and *Polycentropus irroratus* (Curtis, 1835). Notable range extensions are indicated by arrows.



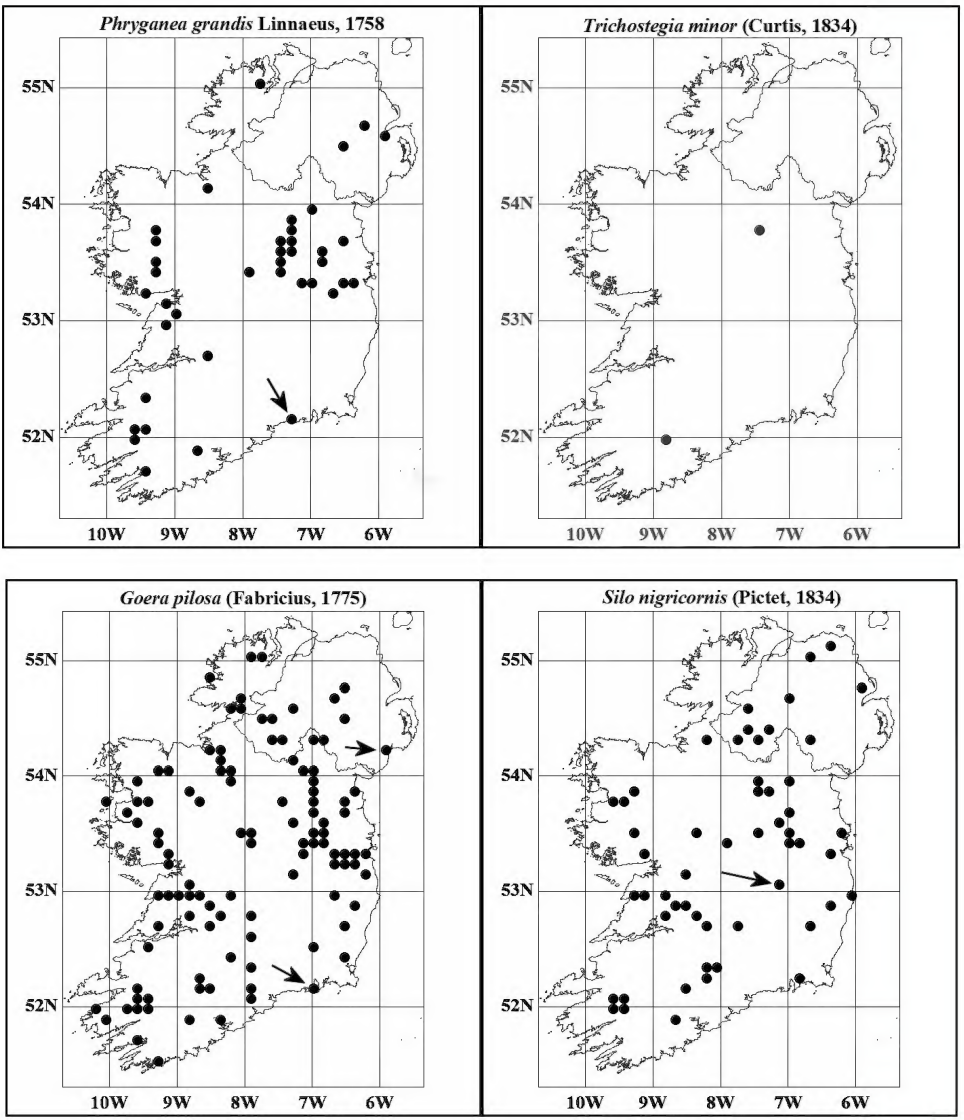
FIGURES 17-20. The known Irish distributions of *Lype phaeopa* (Stephens, 1836), *Lype reducta* (Hagen, 1868), *Tinodes maclachlani* Kimmins, 1966 and *Tinodes maculicornis* (Pictet 1834). Notable range extensions are indicated by arrows.



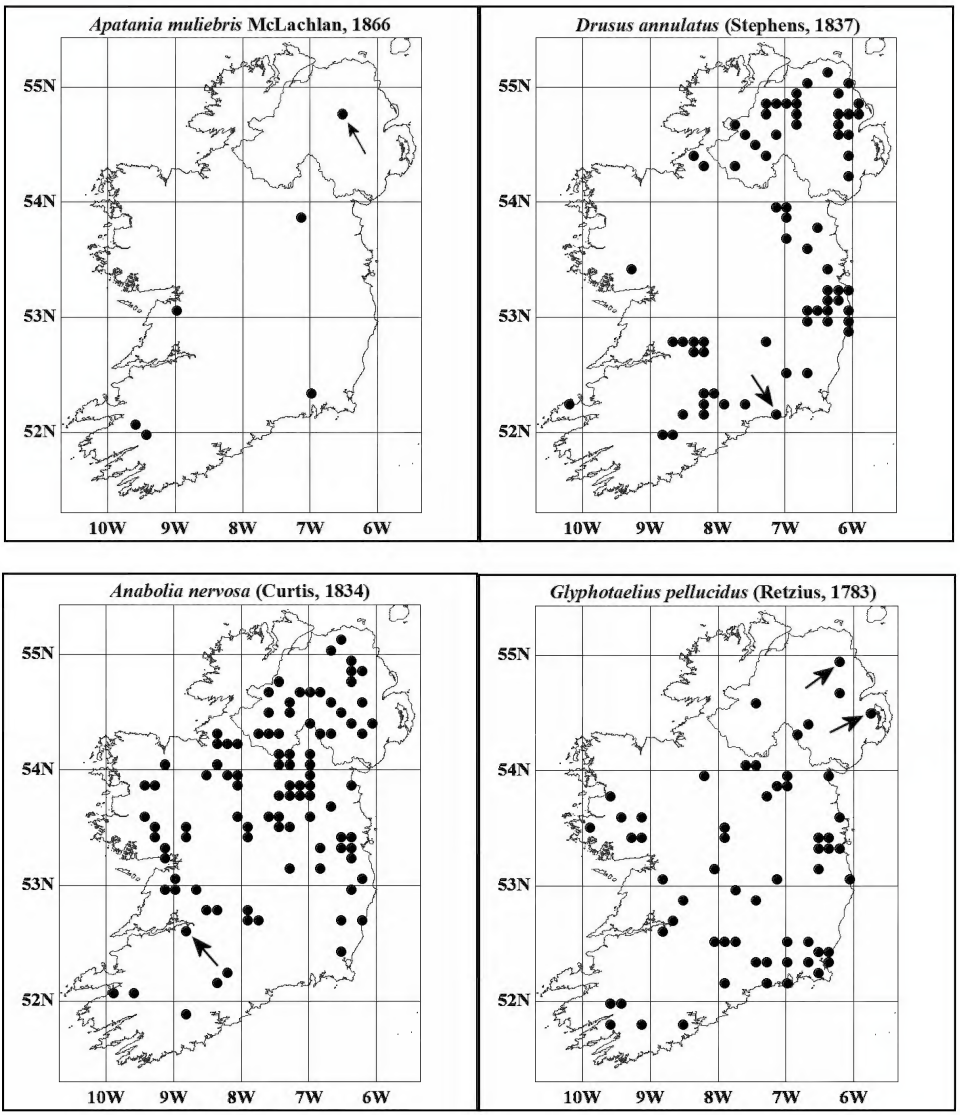
FIGURES 21-24. The known Irish distributions of *Tinodes waeneri* (Linnaeus, 1758), *Hydropsyche angustipennis* (Curtis, 1834), *Hydropsyche contubernalis* McLachlan, 1865 and. *Hydropsyche instabilis* (Curtis, 1834). Notable range extensions are indicated by arrows.



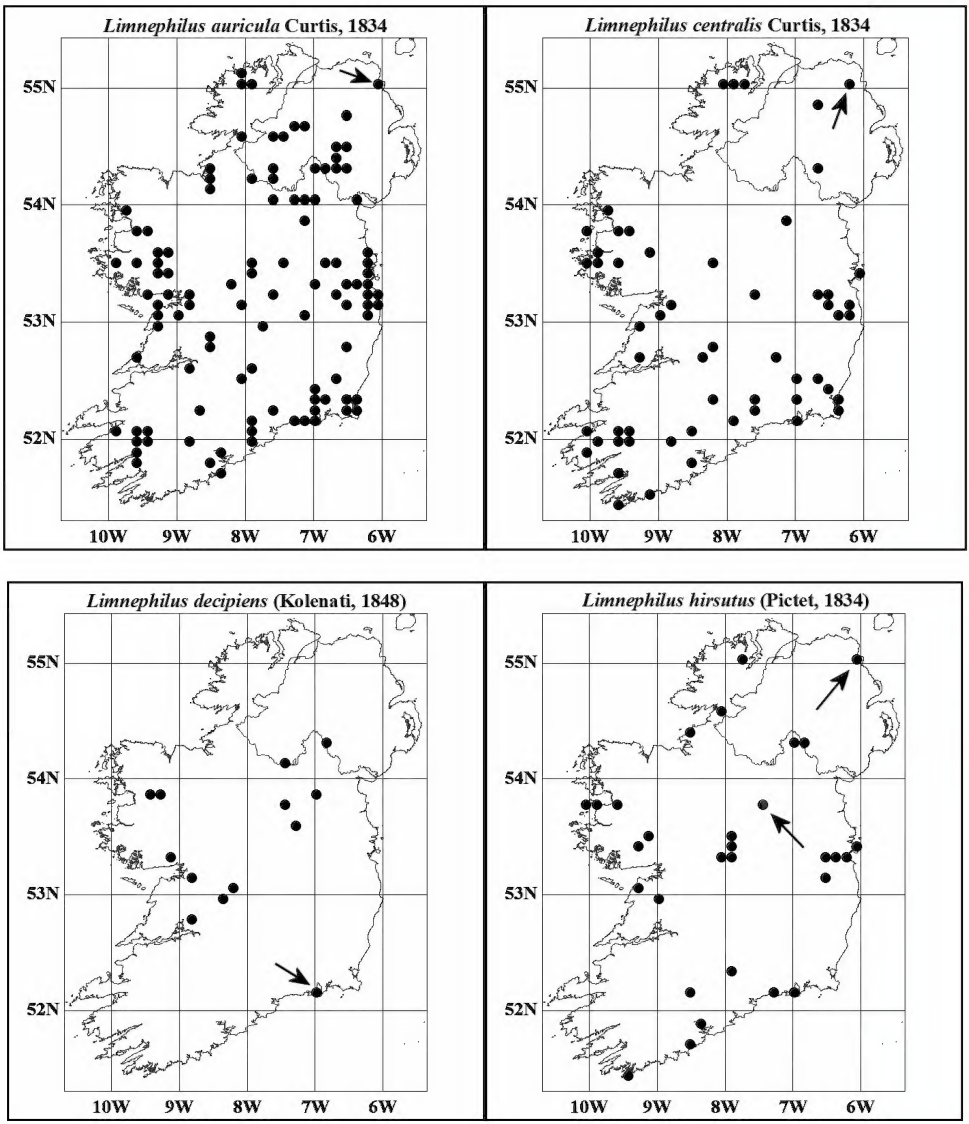
FIGURES 25-28. The known Irish distributions of *Agrypnia obsoleta* (Hagen, 1864), *Agrypnia varia* (Fabricius, 1793), ?*Hagenella clathrata* (Kolenati, 1848) and *Phryganea bipunctata* Retzius, 1783. Notable range extensions are indicated by arrows.



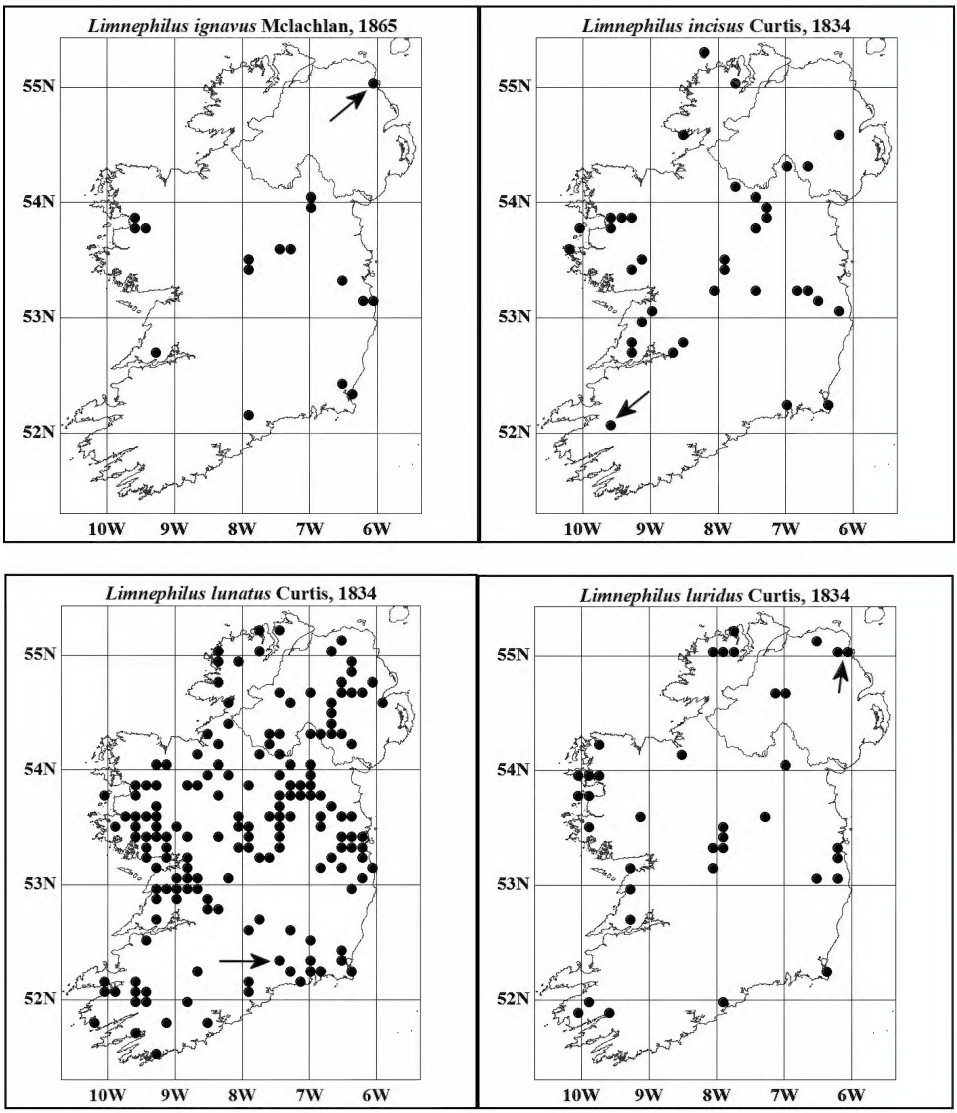
FIGURES 29-32. The known Irish distributions of *Phryganea grandis* Linnaeus, 1758, *Trichostegia minor* (Curtis, 1834), *Goera pilosa* (Fabricius, 1775) and *Silo nigricornis* (Pictet, 1834). Notable range extensions are indicated by arrows.



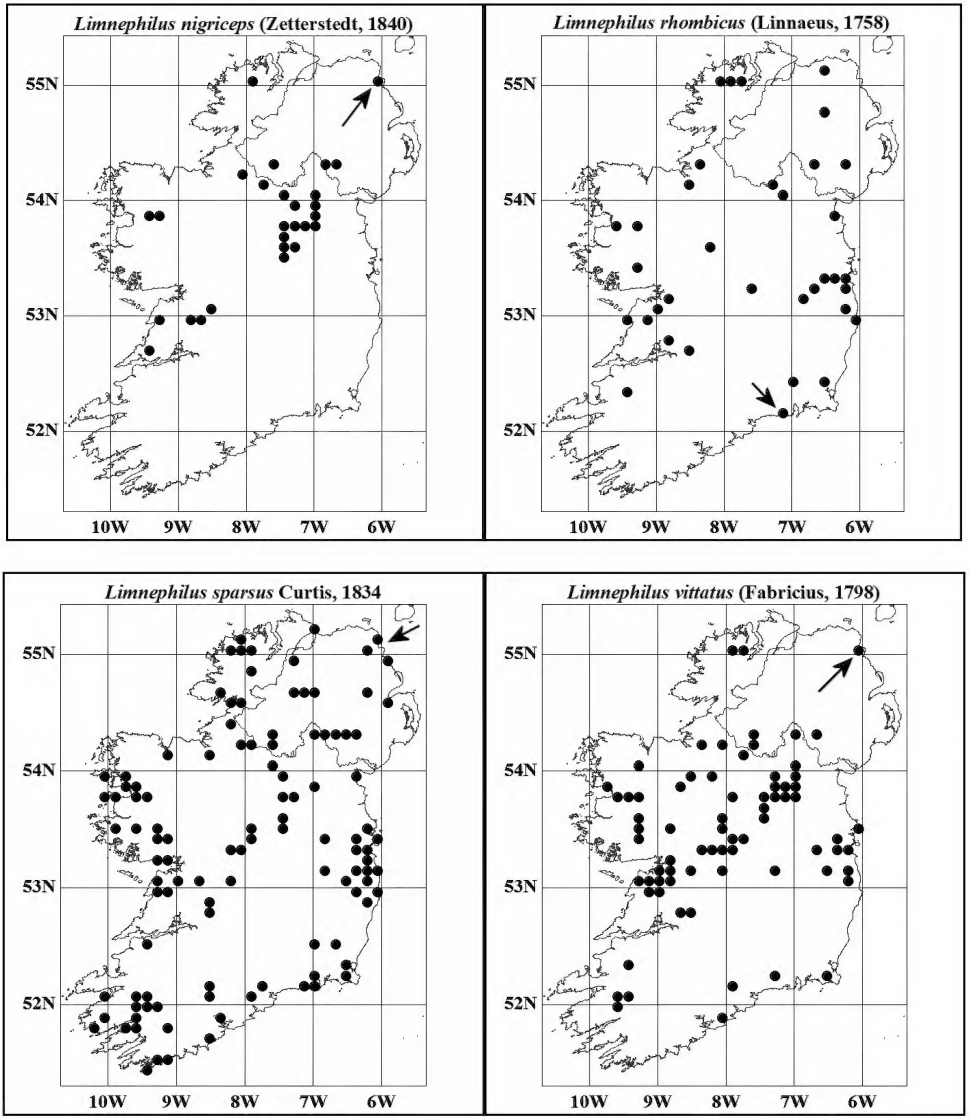
FIGURES 33-36. The known Irish distributions of *Apatania muliebris* McLachlan, 1866, *Drusus annulatus* (Stephens, 1837), *Anabolia nervosa* (Curtis, 1834) and *Glyphotaelius pellucidus* (Retzius, 1783). Notable range extensions are indicated by arrows.



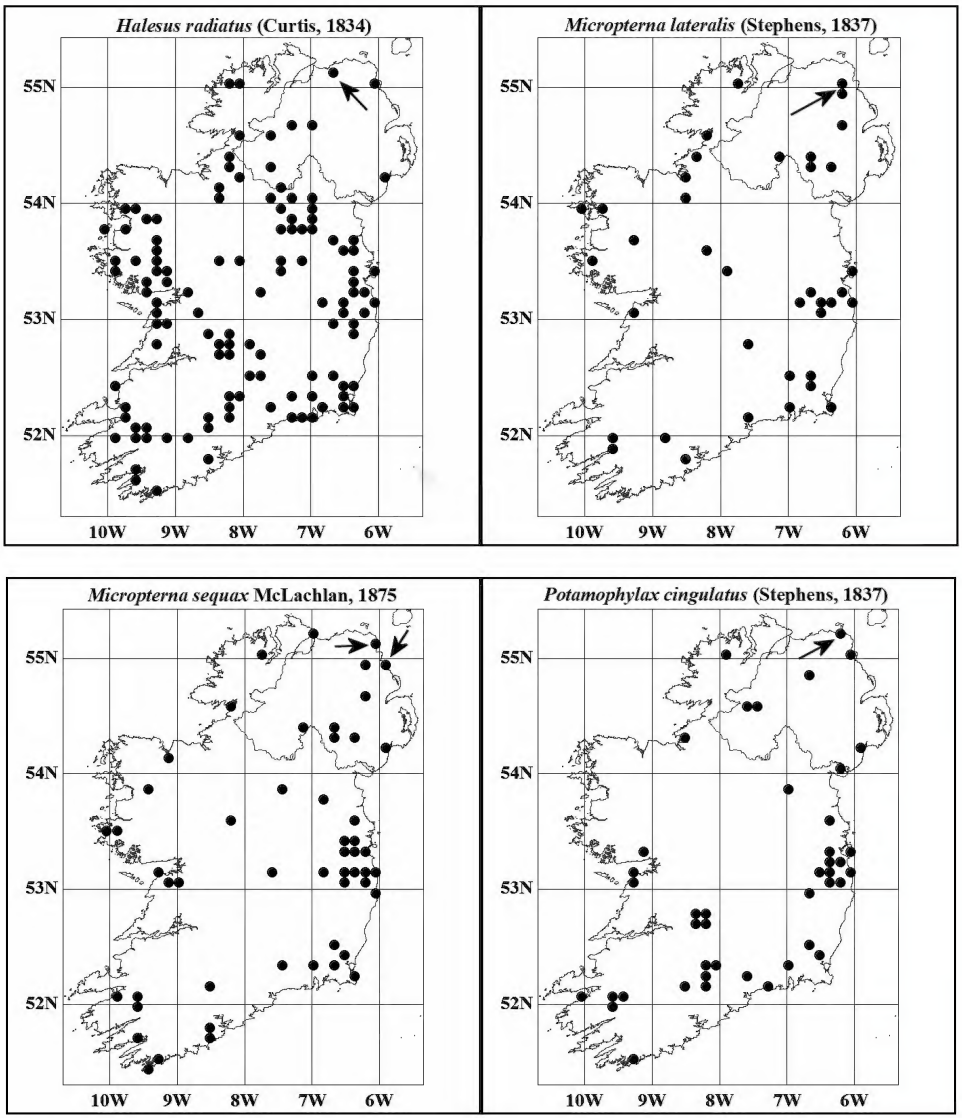
FIGURES 37-40. The known Irish distributions of *Limnephilus auricula* Curtis, 1834, *Limnephilus centralis* Curtis, 1834, *Limnephilus decipiens* (Kolenati, 1848) and *Limnephilus hirsutus* (Pictet, 1834). Notable range extensions are indicated by arrows.



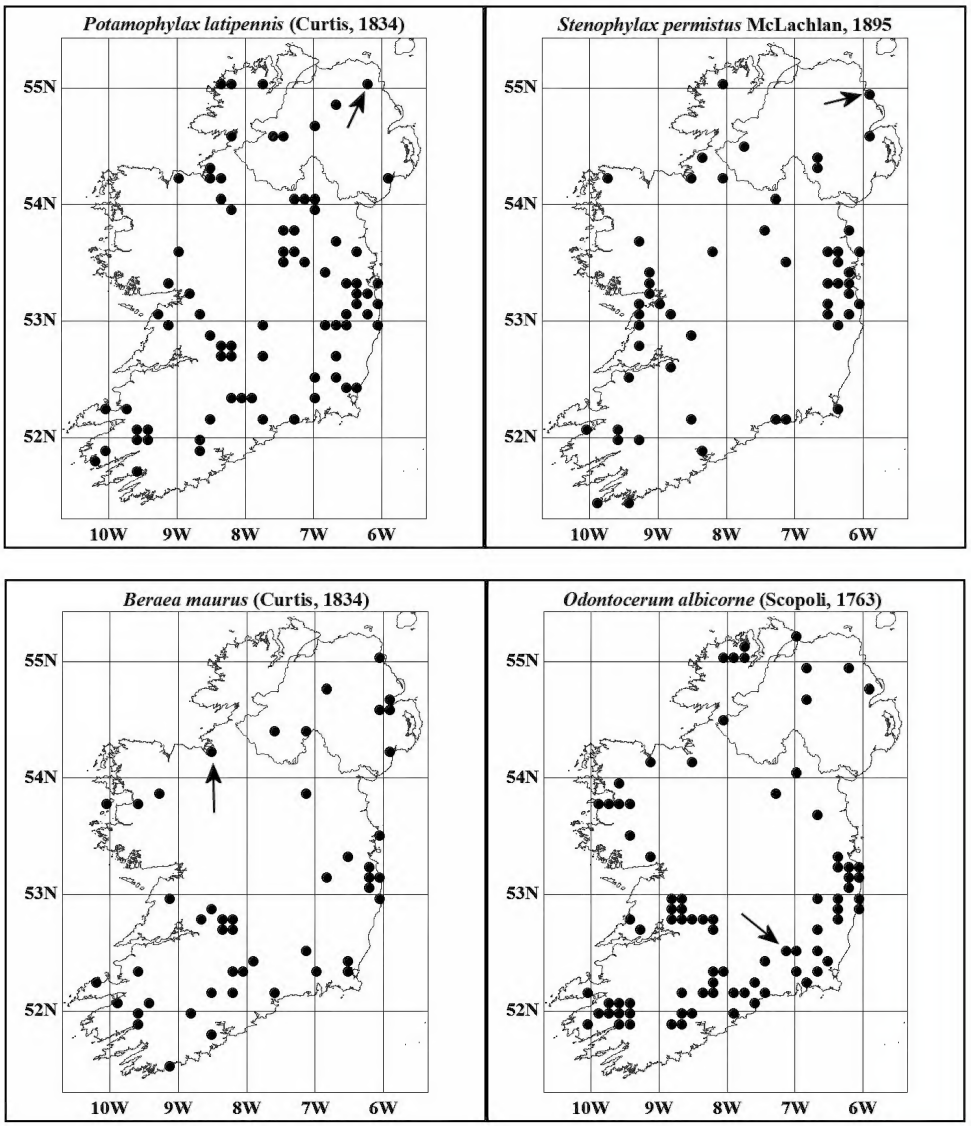
FIGURES 41-44. The known Irish distributions of *Limnephilus ignavus* McLachlan, 1865, *Limnephilus incisus* Curtis, 1834, *Limnephilus lunatus* Curtis, 1834 and *Limnephilus luridus* Curtis, 1834. Notable range extensions are indicated by arrows.



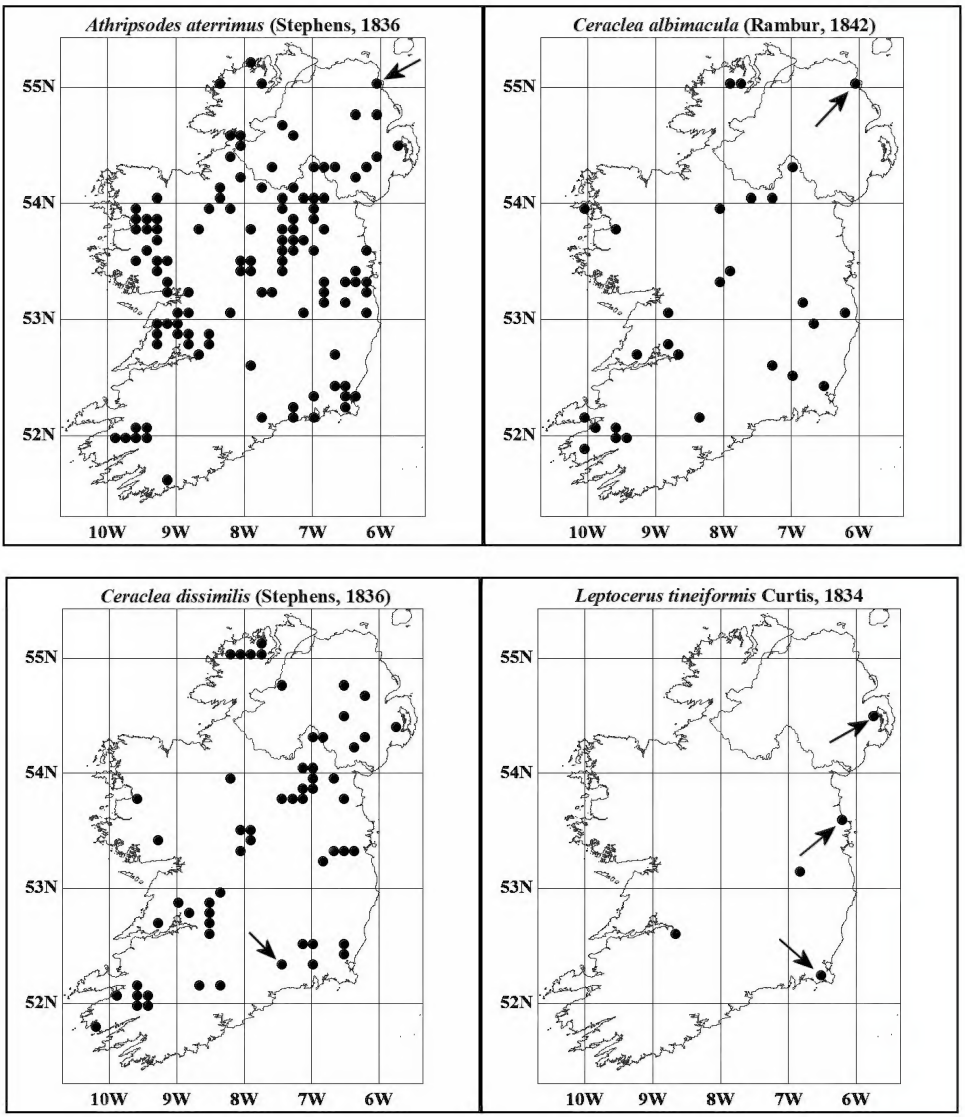
FIGURES 45-48. The known Irish distributions of *Limnephilus nigriceps* (Zetterstedt, 1840), *Limnephilus rhombicus* (Linnaeus, 1758), *Limnephilus sparsus* Curtis, 1834 and *Limnephilus vittatus* (Fabricius, 1798). Notable range extensions are indicated by arrows.



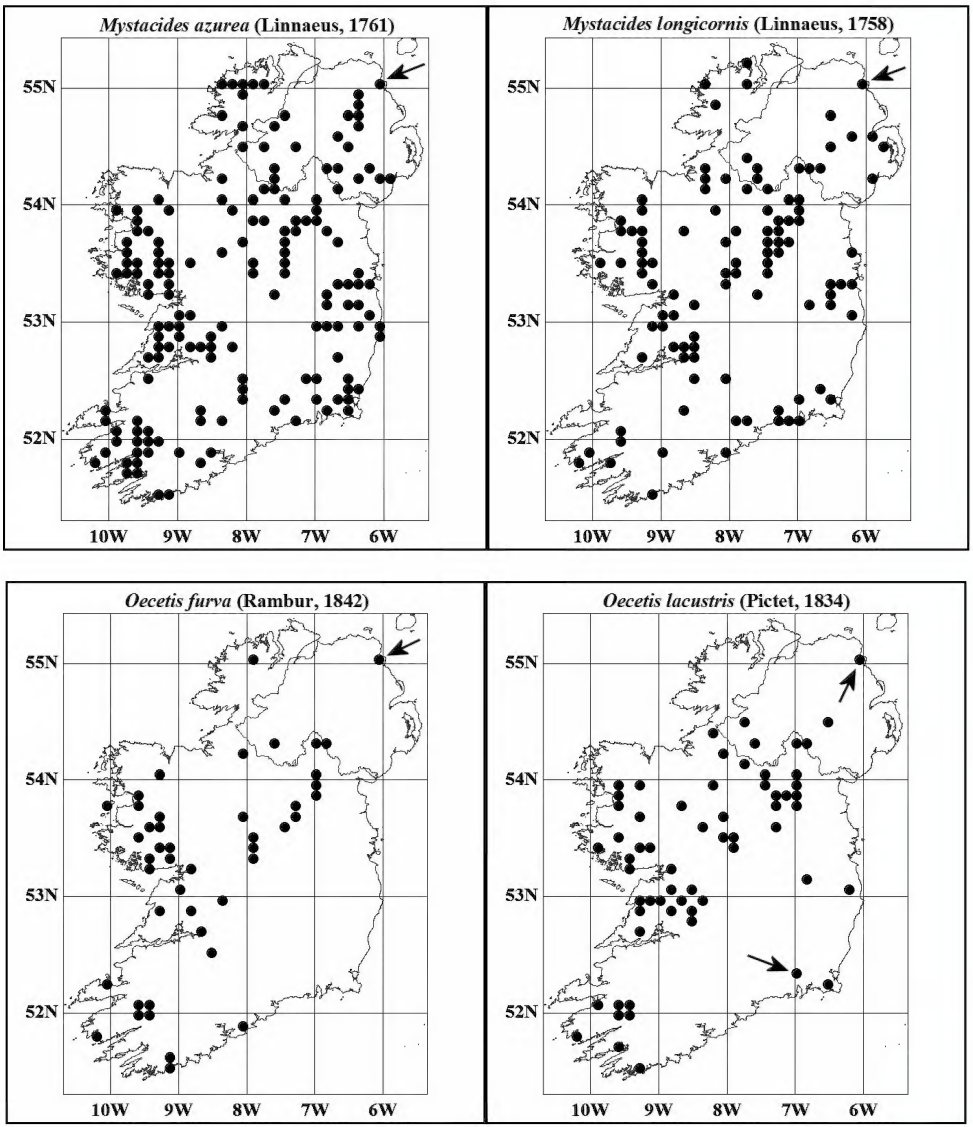
FIGURES 49-52. *Halesus radiatus* (Curtis, 1834), *Micropterna lateralis* (Stephens, 1837), *Micropterna sequax* McLachlan, 1875 and *Potamophylax cingulatus* (Stephens, 1837). Notable range extensions are indicated by arrows.



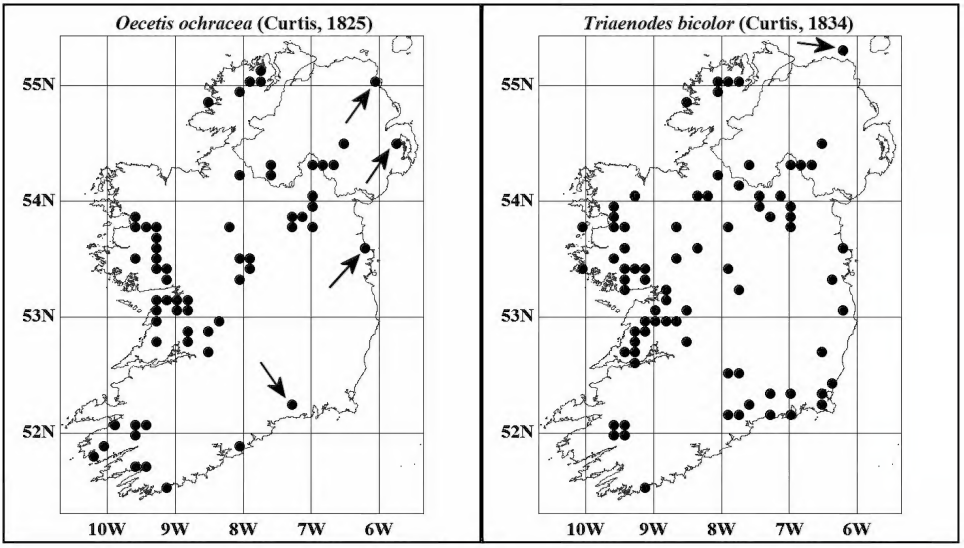
FIGURES 53-56. The known Irish distributions of *Potamophylax latipennis* (Curtis, 1834), *Stenophylax permistus* McLachlan, 1895, *Beraea maurus* (Curtis, 1834) and *Odontocerum albicorne* (Scopoli, 1763). Notable range extensions are indicated by arrows.



FIGURES 57-60. The known Irish distributions of *Athripsodes aterrimus* (Stephens, 1836), *Ceraclea albimacula* (Rambur, 1842), *Ceraclea dissimilis* (Stephens, 1836) and *Leptocerus tineiformis* Curtis, 1834. Notable range extensions are indicated by arrows.



FIGURES 61-64. The known Irish distributions of *Mystacides azurea* (Linnaeus, 1761), *Mystacides longicornis* (Linnaeus, 1758), *Oecetis furva* (Rambur, 1834) and *Oecetis lacustris* (Pictet, 1834). Notable range extensions are indicated by arrows.



FIGUREs 65-66. The known Irish distribution of *Oecetis ochracea* (Curtis, 1825) and *Triaenodes bicolor* (Curtis, 1834). The notable range extensions are indicated by arrows.

FIGURE 67. The counties of Ireland.

FIGURES 68-69. Above: ?*Hagenella clathrata* (Kolenati, 1848) in wet woodlands beside Abbeyleix Bog, County Laois, 22 May 2016. Photograph © Tina Claffey. Below: *Agrypnia obsoleta* (Hagen, 1864), Lough na Trosk, Garron Plateau, County Antrim, 1 August 2017. Photograph © Cathal McNaughton.

FIGURES 70-71. Wavin Lake, Balrothery, County Dublin. Above: general view. Photograph © Mary O'Connor. Below: causeway between the lake and adjoining pond. Photograph © Helen O'Connor. Adults of *Leptocerus tineiformis* were collected on this causeway.

FIGURES 72-73. Views of Castle Lake, Johnstown Castle, County Wexford. Adults of *Leptocerus tineiformis* were collected on this lake. Photographs © Kevin O'Connor.

FIGURES 74-75. Above: the Lower Lake, Johnstown Castle, County Wexford. An adult of *Lype reducta* was taken here. Photograph © Kevin O'Connor. Below: Tullynagee, County Down. Adults of *Leptocerus tineiformis* were collected on this lake. Photograph © Oliver Dixon, geograph.org.uk.

FIGURE 76. Oaklands Lake, New Ross, County Wexford. Adults of *Oecetis lacustris* were taken at this lake. Photograph © Mary O'Connor.

FIGURE 77. *Oecetis ochracea* (Curtis, 1825), a species recently found in Counties Antrim, Down, Dublin and Waterford. Photograph © Cathal McNaughton.

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THE CHIRONOMIDAE (INSECTA, DIPTERA) OF ACHILL ISLAND, COUNTY MAYO – NEW RECORDS AND CHECKLIST

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Abstract

Records of 27 species of Chironomidae are reported from Achill Island, County Mayo in Hydrometric Area 33 of Ireland. Four species are recorded from County Mayo for the first time, twenty one are new records for Achill Island and fifteen are new for Hydrometric Area 33. The identified material is listed and comments given. A list of the 88 species currently known from Achill Island is given.

Key words: Chironomidae, Ireland, Achill Island, Mayo, Hydrometric Area 33, distribution.

Introduction

The earliest documented records of Chironomidae from Achill Island, County Mayo were given by Grimshaw (1912) who recorded eight species, identified from collections of adult insects made in 1910 during the Clare Island Survey (Praeger, 1915). As part of a New Survey of Clare Island, initiated by the Royal Irish Academy, the author undertook collections of Chironomidae in May, August and September 2004 on Achill Island when 54 species were recorded, only two of which had been documented by Grimshaw (1912). Additional species records for Achill Island were obtained from the author's examination of chironomid pupal exuviae collected from Loughs Acorrymor and Keel in June, July and September 2008 by field research personnel of the Environmental Protection Agency for CPET analyses (Wilson and Ruse, 2005) under the Agency's lake water quality assessment programme. The combined results from those investigations yielded a total of 67 species known from Achill Island that were included in the comprehensive distribution data in three volumes by Murray *et al.* (2013, 2014, 2015). To augment that data, pupal exuviae and some adult Chironomidae were collected in August 2017 in the low lying north east section of the island that had not been investigated previously. Twenty seven species were recorded of which 21 are additional species records for the Island. This paper reports on these records and gives a full inventory of the 88 species of Chironomidae now known to occur on Achill Island that has been compiled by amalgamation of records from previous investigations.

Methods

Records are derived from examination of collections of chironomid pupal exuviae, pharate pupae and adults obtained by skimming the water surface of lakes, ponds and backwater regions of small streams with a fine mesh net. Samples obtained were preserved in the field in 70% alcohol. Aliquots of bulk samples were examined under low power microscopy and pupal exuviae were removed. Temporary slide preparations of exuviae were made using pure glycerine while some permanent preparations were made using Euparol as the mountant with species determinations from Langton and Visser (2003). Remaining voucher material is preserved in alcohol in the author's collection.

The following abbreviations are used: HA – Hydrometric Area (singular); HAs – Hydrometric Areas (plural).

Collection sites

Achill Island, County Mayo occupies the most westerly section of Hydrometric Area 33, the Broadhaven – Blacksod catchments of the Western River Basin District (see <www.epa.ie> for details of hydrometric areas in Ireland). Collections were made on 28 and 29 August 2017 at nine sites in the north-east region of the island. Details of these sites with grid references and dates of collection are as follows:

Site 1. Lavelle's Camping facility, Dugort (F695087). Adult males at window, adjacent to the River Barrynagappul, 28 August 2017.

Site 2. River Barrynagappul, approximately 200m upstream of the sea at Dugort (F697088). Pupal exuviae were scooped from the water surface, 28 August 2017.

Site 3. A shallow marshland pool behind the sand hills on Barrynagappul Beach, opposite Masterson's (F694088). The pool had maximum depth of 20-40cm at time of sampling. Adult males and females, pupal exuviae and pharates were obtained in foam accumulations on the leeward side of the pool on 28 August 2017.

Site 4. Rock pools on the western end of Pollawaddy Beach, influenced by inflowing freshwater from a small stream adjacent to the Strand Hotel (F671089). Collections of pupal exuviae only were obtained on 29 August 2017.

Site 5. Stream, above Site 4, below the bridge at Pollawaddy Beach on the road to Creggancarragh Pier (F671088). Collections of pupal exuviae on 29 August 2017.

Site 6. Doo Lough, roadside along the east shore (F713094). Collections of pupal exuviae were made along the leeward shore in a stiff westerly breeze on 29 August 2017.

Site 7. Water in a bog cutting on the western side of the road to Ridge Point (F711092), Collections of adult males and pupal exuviae on 29 August 2017.

Site 8. Marine rock pools immediately north of the pier on east coast of the promontory to Ridge Point (F717099). Collections of pupal exuviae on 29 August 2017.

Site 9. Sruhill Lough (Dooniver Lough) on the east shore near Ship Point (F720090). This brackish lough has a direct connection to the sea. Collections of adult males and females, pupal exuviae and pharates on 29 August 2017.

Results

The species recorded are listed in Table 1. Twenty seven species were recorded in three subfamilies: two species of Tanypodinae, 15 species of Orthocladiinae and 10 species in the subfamily Chironominae. In the following account, unless otherwise stated, reference to existing information on Irish distribution records of Tanypodinae is from Murray *et al.* (2013), of Orthocladiinae from Murray *et al.* (2014) and of Chironominae from Murray *et al.* (2015).

Additional and new records of Chironomidae from Achill Island

Subfamily TANYPODINAE

Two species of Tanypodinae are identified, both are already known from County Mayo while one is a new record for Achill Island and HA 33.

***Ablabesmyia monilis* (Linnaeus, 1758)**

Exuviae were collected from the cutaway bog pool at Site 7. *Ablabesmyia monilis* is a common species in Ireland. More than 40 records already exist from County Mayo, 12 from HA 33 nine of which are from Achill Island at Loughs Acorrymor, Keel and Bunacurry (Murray *et al.,* 2013).

***Procladius* (*Psilotanypus*) *lugens* Kieffer, 1915 New to Achill Island and HA 33**

Procladius lugens has been rarely recorded in Ireland with records from only 12 locations to date. There are two previous records from one location in County Mayo at Lough Knappagbeg, Westport in HA 32. This is the first record of the species from HA 33 and Achill Island.

Subfamily ORTHOCLADIINAE

Fifteen species of Orthocladiinae in ten genera are present in the collections, two are new records for County Mayo while 10 are documented for the first time from Achill Island and HA 33.

***Acricotopus lucens* (Zetterstedt, 1850) New to Achill Island**

Exuviae of *Acricotopus lucens* were present in the collection from the bog pool at Site 7. It is a common species in Ireland. There six existing records from County Mayo (one on Clare Island) and two previous records from HA 33 from the River Owenmore at Bangor Erris and from a bog pool at Glenamoy but this is the first record of the species from Achill Island.

***Chaetocladius* (*Chaetocladius*) *perennis* (Meigen, 1830) New to Achill Island and HA 33**

There are records of *Chaetocladius perennis* from 19 locations on the Irish mainland with an additional four on Clare Island. The species has five previous records from County Mayo, one

from Roonagh, Louisburg in HA 32. The record from the stream at Site 5, Doogort west, is the first record of the species from HA 33 and Achill Island.

***Clunio marinus* Haliday, 1855 New to Achill Island and HA 33**

A marine coastal dwelling species typically found in rock pools, *Clunio marinus* has been previously found on Atlantic shorelines in Counties Clare, Donegal, Galway, Kerry and Mayo. The two existing records from County Mayo are from the Atlantic coastal region of HA 32 at Carickyvegraly Point, Louisburg and also on the eastern shore of Clare Island (Murray and Murray, 2003). Typically found in marine intertidal rock pools, the record from the east shoreline of the brackish Sruhill Lough is the first record of the species from HA 33.

***Corynoneura celeripes* Winnertz, 1852 New to HA 33**

There are few records of *Corynoneura celeripes* in Ireland from ponds, bog pools and small lakes. The species was previously recorded in County Mayo from a bog pond at Bellacorrick in HA 34. The record from the bog cutting on Achill Island at Site 7 is the first record of the species from Achill Island and extends its known distribution westwards in HA 33.

***Cricotopus* (*Cricotopus*) *flavocinctus* (Kieffer, 1924) New to HA 33**

Cricotopus flavocinctus is known from 13 locations in Ireland, including a record in County Mayo from the River Altahoney, north of Newport (as *C. oscillator* Meigen in Fahy and Murray, 1972). The record from Dugort is the first record from Achill Island and HA 33.

***Cricotopus* (*Cricotopus*) *tibials* (Meigen, 1804) New to Achill Island and HA 33**

This species has been sporadically recorded in Ireland. There are seven previous records from County Mayo in HAs 32 and 34 and on Clare Island. Three of the records were reported by Grimshaw (1912) from the environs of Westport and on Clare Island during the Clare Island Survey. The record from Site 3 is the first record from Achill Island and HA 33.

***Cricotopus* (*Isocladius*) *intersectus* (Staeger, 1839) New to Achill Island and HA 33**

Cricotopus intersectus is a common species in Ireland but there is only one record to date from County Mayo at Lough Mallard, Castlebar in HA 34. The record from Dugort at Site 3 is new for Achill Island and HA 33.

***Halocladius* (*Halocladius*) *fucicola* (Edwards, 1929) New to Achill Island and HA 33**

This is a marine coastal dwelling species whose larvae live in rock pools and brackish waters. There are existing records in Ireland from just nine locations, including two records in County Mayo from Clare Island. *Halocladius fucicola* was found at two sites on Achill Island, at Site 8 in a coastal rock pook at Altderg Pier and from the brackish Sruhill Lough at Site 9 where pupal exuviae and adults were collected. This is a first record from Achill Island and coastal sites in HA 33.

***Metriocnemus picipes* (Meigen, 1818) New Achill Island and HA 33**

Several adult males of *Metriocnemus picipes* were collected from a swarm outside a window at the Dugort camping facility, Site 1. It is already on record from County Mayo in HA 26 at Ballyhaunis and also from two sites on Clare Island (Murray and Murray, 2003). The records from Dugort is the first record of the species from HA 33 and Achill Island.

***Metriocnemus ephemerus* Langton, 2015 New to Mayo, Achill Island and HA 33**

Adult male and females, pupae and pupal exuviae of this species were collected in the surface skim sample from the marsh/pond at Site 3, Dugort. *Metriocnemus ephemerus* was only recently described from a tidal bay on the lower reach of the River Bann, County Derry (Langton, 2015). The adult males are readily recognised by the reduced wings, reduced antennal plume and having an AR (antennal ratio) of less than 1.0. This record from Dugort is only the second record of the species from Ireland and is the first record for Achill Island, County Mayo and HA 33.

***Orthocladius* (*Orthocladius*) *wetterensis* Brundin, 1956 New to Mayo, Achill Island and HA 33**

There are only five previous records of *Orthocladius wetterensis* in the east and southwest of Ireland thus the record from the pond, Site 3 at Dugort, is the first record of the species from County Mayo, Achill Island and HA 33.

***Psectrocladius* (*Mesopsectrocladius*) *barbatipes* Kieffer, 1923 New to Achill Island**

Although there are over 50 records of *Psectrocladius barbatipes* in Ireland, there is only one record to date from County Mayo in a bog pool at Glenamoy in HA 33. The record from the bog pool at Site 7 is a new record for Achill Island.

***Psectrocladius* (*Psectrocladius*) *limbatellus* (Holmgren, 1869) New to Achill Island and HA 33**

Psectrocladius limbatellus is a commonly found species in Ireland. There are four previous records from County Mayo in HA 30 at Lough Carra, Ballinrobe, in HA 32 at Lough Nahaltora, Cregganbaun and on Clare Island. The record from the bog pool at Site 7 is a new record for Achill Island and HA 33.

***Thalassosmittia thalassophila* (Bequaert and Goetghebuer, 1914) New to Achill Island and HA 33**

Thalassosmittia thalassophila is a marine coastal dwelling species. There are nine previous records from County Mayo, six on Clare Island (Murray and Murray, 2003) and three on mainland coastal regions at Killary, Murrisk and Roonagh Pier. The record from Site 8 just north of Altderg Pier is a new record for Achill Island and HA 33.

Subfamily CHIRONOMINAE

Ten species of Chironominae are reported, six from the Tribe Chironomini (one new record for County Mayo, two new for HA 33) and four from the Tribe Tanytarsini (one new for County Mayo that is also new for HA 33).

Tribe Chironomini

***Chironomus* (*Chironomus*) *salinarius* (Kieffer, 1915) New to Mayo, Achill Island and HA 33**

Larvae of *Chironomus salinarius* are typical denizens of sediments of saline or brackish waters. There are just six previous records in Ireland, no doubt due to infrequent sampling of suitable habitats. It was recently recorded in a brackish water pond at Fota, Cork (Murray, 2016). Pupal exuviae and a single adult male collected at Site 9 from Lough Struhill provide the first record of the species for County Mayo, Achill Island and HA 33.

***Cladopelma viridulum* (Linnaeus, 1767)**

Cladopelma viridulum is a common species in Ireland. There are eight previous records of the species from County Mayo in HAs 32, 33 and 34 including two records from Achill Island at Lough Keel (Murray *et al.*, 2015). The record from Site 6 at Lough Doo is not unexpected.

***Glyptotendipes* (*Glyptoendipes*) *paripes* (Edwards, 1929) New to Achill Island**

Glyptotendipes paripes is a common species in Ireland with records from over 90 locations in the country including two from County Mayo in HA 33 at Lough Carrowmore, Bangor Erris. Pupal exuviae and adult males from the bog cutting, Site 7, west of the road to Ridge Point, give the only record of the species thus far from Achill Island.

***Polypedilum* (*Polypedilum*) *nubeculosum* (Meigen, 1804) New to Achill Island**

Polypedilum nubeculosum is widespread in lakes, pools, rivers and streams in Ireland. It is already on record from six locations in County Mayo, in HAs 32, 33 and 34. There is just one previous record from HA 33 from a bog pool at Glenamoy (Dowling and Murray, 1981). The record from the River Barrynagappul at Site 2 is the first record of the species on Achill Island.

***Polypedilum* (*Uresipedilum*) *cultellatum* Goetghebuer, 1931 New to Achill Island and HA 33**

Polypedilum cultellatum is a common species in Ireland with records from over 45 locations. There is just one existing record of the species from County Mayo in HA 34 at Castlebar Lough. The record from the bog pool at Site 7 is the first for HA 33 and Achill Island.

***Stictochironomus sticticus* (Fabricius, 1781)**

There are eight existing records of *Stictochironomus sticticus* from County Mayo, one each in HAs 26, 30 and 34, three in HA 32 and two in HA 33 from Lough Acorrymor on Achill Island. The record at Site 2 is not surprising.

Tribe Tanytarsini

***Micropsectra pallidula* (Meigen, 1830)**

Micropsectra pallidula is a very common species and has been recorded from over 100 locations in Ireland. There are eight previous records in County Mayo, four in HA 32 and four in HA 33, including three on Achill Island from a stream at Keem, from Lough Bunacurry and from a pool at Camport (Murray *et al.*, 2015).

***Paratanytarsus laccophilus* (Edwards, 1929)**

There are existing records of *Paratanytarsus laccophilus* from 40 locations in Ireland including six previous records from County Mayo, two in HA 30, one in HA 33 from a bog pool at Sraheens on Achill Island and three in HA 34.

***Paratanytarsus lauterborni* (Kieffer, 1909) New to Mayo, Achill Island and HA 33**

There are only nine existing records of *Paratanytarsus lauterborni* in Ireland and no records from County Mayo although it is known from lakes in HAs 30 and 31 near Maam Cross, County Galway. The record at Site 7 from the bog pool is the first record of the species from HA 33 and Achill Island.

***Tanytarsus buchonius* Reiss and Fittkau, 1971**

There are two previous records in County Mayo in HA 33 of *Tanytarsus buchonius*, one on Achill Island from a bog pool on the southwestern side of Knockmore mountain, near Camport and one from a bog pool at Glenamoy (Murray *et al.*, 2015). There are a further three records from Clare Island.

Comments

The collections of Chironomidae reported here from Achill Island have yielded 27 species four of which, *Metriocnemus ephemerus* Langton, *Orthocladius* (*Orthocladius*) *wetterensis* Brundin, *Chironomus* (*Chironomus*) *salinarius* (Kieffer) and *Paratanytarsus lauterborni* (Kieffer) are recorded for the first time from County Mayo. Twenty one species are first records for Achill Island and 15 are first records for HA 33. By combining the results from the collections reported here with those from previous investigations, a listing of 88 species is compiled and is presented in the accompanying appendix. One discrete and recognisable species in the list, *Psectrocladius* sp A, is not yet formally described. The characteristic pupal exuviae of this species was recognised in Great Britain in 1980 (Langton, 1980) but the adult remains without a formal taxonomic name and is undescribed although it is included in the identification keys to adult males of the Chironomidae of Britain and Ireland (Langton and Pinder, 2007). Langton (2002) provided the first published record for Ireland (from Northern Ireland) from specimens collected in 2000 but pupal exuviae were first collected in Ireland in 1982 from

Lough Dan, County Wicklow. It is known from mountain lakes in 23 locations in Ireland, including the record from Lough Acorrymor on Achill Island in 2004.

Acknowledgements

The author wishes to thank Peter Langton for confirming the identifications of *Metriocnemus ephemerus* and *Chironomus salinarius* and Richard Farrelly for the accommodation on Achill Island in August 2017 that facilitated collections from the northeast of Achill Island and also acknowledges the samples of pupal exuviae from 2008, provided by the Environmental Protection Agency, and the Praeger Committee of the Royal Irish Academy for a subsistence grant that facilitated fieldwork in 2004.

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TABLE 1. Chironomidae recorded from nine sites on Achill Island, County Mayo, 28-29 August 2017. New records for County Mayo are denoted by a plus symbol (+), for Achill Island by hash (#) and Hydrometric Area 33 by an asterisk (*).

Taxon	Sites	
Subfamily Tanypodinae		
Ablabesmyia monilis (Linnaeus, 1758)	7	
Procladius (*Psilotanypus*) *lugens* Kieffer, 1915	6	# *
Subfamily Orthocladiinae		
Acricotopus lucens (Zetterstedt, 1850)	7	#
Chaetocladius (*Chaetocladius*) *perennis* (Meigen, 1830)	5	# *
Clunio marinus Haliday, 1855	9	# *
Corynoneura celeripes Winnertz, 1852	7	#
Cricotopus (*Cricotopus*) *flavocinctus* (Kieffer, 1924)	3	# *
Cricotopus (*Cricotopus*) *tibialis* (Meigen, 1804)	3	# *
Cricotopus (*Isocladius*) *intersectus* (Stæger, 1839)	3	# *
Halocladius (*Halocladius*) *fucicola* (Edwards, 1926)	8, 9	# *
Halocladius (*Halocladius*) *varians* (Staeger, 1839)	4, 9	# *
Metriocnemus (*Metriocnemus*) *ephemerus* Langton 2015	3	+ # *
Metriocnemus (*Metriocnemus*) *picipes* (Meigen, 1818)	1	# *
Orthocladius (*Orthocladius*) *wetterensis* Brundin, 1956	3	+ # *
Psectrocladius (*Mesopsectrocladius*) *barbatipes* Kieffer, 1923	7	#
Psectrocladius (*Psectrocladius*) *limbatellus* (Holmgren, 1869)	7	# *
Thalassosmittia thalassophila (Bequaert & Goetghebuer, 1914)	8	#
Subfamily Chironominae tribe Chironomini		
Chironomus (*Chironomus salinarius*) (Kieffer, 1915)	9	+ # *
Cladopelma viridulum (Linnaeus, 1767)	6	
Glyptotendipes (*Glyptotendipes*) *paripes* (Edwards, 1929)	7	#
Polypedilum (*Polypedilum*) *nubeculosum* (Meigen, 1804)	2	#
Polypedilum (*Uresipedilum*) *cultellatum* Goetghebuer, 1931	7	# *
Stictochironomus sticticus (Fabricius, 1781)	2	
Subfamily Chironominae tribe Tanytarsini		
Micropsectra pallidula (Meigen, 1830)	3	
Paratanytarsus laccophilus (Edwards, 1929)	6	
Paratanytarsus lauterborni (Kieffer, 1909)	7	+ # *
Tanytarsus buchonius Reiss & Fittkau, 1971	7	

APPENDIX. Checklist of the Chironomidae of Achill Island (88 species).

This checklist is compiled from species records of the present study combined with data from earlier investigations. Species are listed alphabetically by genus within Subfamily. The source(s) of each record is (are) indicated by the letters A, B, C or D following the species name. The letter A indicates a record from the present study, the letter B designates records from samples provided by the Environmental Protection Agency in 2008, the letter C designates records from collections by the author in 2004 and the letter D indicates records from 1910 by Grimshaw (1912).

Subfamily Tanypodinae (13 species)

Ablabesmyia (*Ablabesmyia*) *longistyla* Fittkau, 1962 - C
Ablabesmyia (*Ablabesmyia*) *monilis* (Linnaeus, 1758) - A, B, C
Ablabesmyia (*Ablabesmyia*) *phatta* (Egger, 1864) - C
Arctopelopia griseipennis (van der Wulp, 1859) - C
Conchapelopia pallidula (Meigen, 1818) - C
Krenopelopia nigropunctata (Staeger, 1839) - C
Macropelopia adaucta Kieffer, 1916 - B, C
Macropelopia nebulosa (Meigen, 1804) - C, D
Procladius (*Holotanypus*) *choreus* (Meigen, 1804) - B, C
Procladius (*Holotanypus*) *sagittalis* (Kieffer, 1909) - C
Procladius (*Psilotanypus*) *lugens* Kieffer, 1915 - A
Zavrelimyia (*Paramerina*) *cingulata* (Walker, 1856) - B, C
Zavrelimyia (*Zavrelimyia*) *barbatipes* (Kieffer, 1911) - C

Subfamily Diamesinae (3 species)

Potthastia gaedii (Meigen, 1838) - C
Protanypus morio (Zetterstedt, 1838) - B, C
Prodiamesa olivacea (Meigen, 1818) - C

Subfamily Orthocladiinae (44 species)

Acricotopus lucens (Zetterstedt, 1850) - A
Chaetocladius (*Chaetocladius*) *melaleucus* (Meigen, 1818) - C
Chaetocladius (*Chaetocladius*) *perennis* (Meigen, 1830) - A
Clunio marinus Haliday, 1855 - A
Corynoneura celeripes Winnertz, 1852 - A
Corynoneura gratias Schlee, 1968 - C
Corynoneura lobata Edwards, 1924 - C
Cricotopus (*Cricotopus*) *annulator* Goetghebuer, 1927 – C

APPENDIX (continued).

Cricotopus (*Cricotopus*) *flavocinctus* (Kieffer, 1924) - A
Cricotopus (*Cricotopus*) *pallidipes* Edwards, 1929 - C
Cricotopus (*Cricotopus*) *tibialis* (Meigen, 1804) - A
Cricotopus (Isocladius) *intersectus* (Stæger, 1839) - A
Cricotopus (*Isocladius*) *laricomalis* Edwards, 1932 - C
Cricotopus (*Isocladius*) *trifasciatus* (Meigen, 1810) - C
Eukiefferiella coerulescens (Kieffer, 1926) - B, C
Eukiefferiella devonica (Edwards, 1929) - C
Eukiefferiella ilkleyensis (Edwards, 1929) - C
Heleniella ornaticollis (Edwards, 1929) - B, C
Heterotanytarsus apicalis (Kieffer, 1921) - B, C
Halocladius (*Halocladius*) *fucicola* (Edwards, 1926) - A
Halocladius (*Halocladius*) *varians* (Stæger, 1839) - A
Heterotanytarsus apicalis (Kieffer, 1921) - B, C
Heterotrissocladius grimshawi (Edwards, 1929) - B
Hydrosmittia oxoniana (Edwards, 1922) - C
Limnophyes pumilio (Holmgren, 1869) - C
Metriocnemus (*Metriocnemus*) *ephemerus* Langton, 2015 - A
Metriocnemus (*Metriocnemus*) *picipes* (Meigen, 1818) - A
Parakiefferiella bathophila (Kieffer, 1912) - B
Parakiefferiella coronata (Edwards, 1929) - B
Orthocladius (*Mesorthocladius*) *frigidus* (Zetterstedt, 1838) - B
Orthocladius (*Orthocladius*) *wetterensis* Brundin, 1956 - A
Psectrocladius (*Allopsectrocladius*) *obvius* (Walker, 1856) - C
Psectrocladius (*Allopsectrocladius*) *platypus* (Edwards, 1929) - C
Psectrocladius (*Mesopsectrocladius*) *barbatipes* Kieffer, 1923 - A
Psectrocladius (*Psectrocladius*) *fennicus* Storå, 1939 - B
Psectrocladius (*Psectrocladius*) *limbatellus* (Holmgren, 1869) - A
Psectrocladius (*Psectrocladius*) *oligosetus* Wülker, 1956 - C
Psectrocladius (*Psectrocladius*) *psilopterus* (Kieffer, 1906) - B, C
Psectrocladius (*Psectrocladius*) *sordidellus* (Zetterstedt, 1838) - B, C, D
+*Psectrocladius* (*Psectrocladius*) sp A (sensu Langton and Pinder, 2007) - C
Synorthocladius semivirens (Kieffer, 1909) - C
Thalassosmittia thalassophila (Bequaert & Goetghebuer, 1914) - A
Tvetenia bavarica (Goetghebuer, 1934) – C

APPENDIX (continued).

Tvetenia calvescens (Edwards, 1929) - C

Subfamily Chironominae – tribe Chironomini (17 species)

Chironomus (*Chironomus*) *piger* Strenzke - C

Chironomus (*Chironomus*) *plumosus* (Linnaeus, 1758) - D

Chironomus (*Chironomus*) *riparius* Meigen, 1804 - D

Chironomus (*Chironomus*) *salinarius* Kieffer, 1915 - A

Cladopelma viridulum (Linnaeus, 1767) - A, B

Cryptochironomus psittacinus (Meigen, 1830) - D

Demeijerea rufipes (Linnaeus, 1761) - D

Dicrotendipes nervosus (Stæger, 1839) - D

Dicrotendipes pulsus (Walker, 1856) - B

Glyptotendipes (*Glyptotendipes*) *paripes* (Edwards, 1929) - A

Paracladopelma laminatum (Kieffer, 1921) - C

Polypedilum (*Pentapedilum*) *tritum* (Walker, 1856) - C

Polypedilum (*Polypedilum*) *arundineti* (Goetghebuer, 1921) - C

Polypedilum (*Polypedilum*) *nubeculosum* (Meigen, 1804) - A

Polypedilum (*Uresipedilum*) *cultellatum* Goetghebuer, 1931 - A

Stictochironomus sticticus (Fabricius, 1781) - A, B, C

Xenochironomus xenolabis (Kieffer, 1916) - B, C

Subfamily Chironominae – tribe Pseudochironomini (1 species)

Pseudochironomus prasinatus (Stæger, 1839) – D

Subfamily Chironominae – tribe Tanytarsini (10 species)

Micropsectra atrofasciata (Kieffer, 1911) - C

Micropsectra pallidula (Meigen, 1830) - A, C

Micropsectra roseiventris (Kieffer, 1909) - C

Paratanytarsus laccophilus (Edwards, 1929) - A, C

Paratanytarsus lauterborni (Kieffer, 1909) - A

Paratanytarsus penicillatus (Goetghebuer, 1928) - C

Stempellinella brevis (Edwards, 1929) - B, C

Tanytarsus buchonius Reiss & Fittkau, 1971 - A, C

Tanytarsus striatulus Lindeberg, 1976 - C

Tanytarsus telmaticus Lindeberg, 1959 - C

SOME NEW DISTRIBUTIONAL RECORDS OF CADDISFLIES (TRICHOPTERA) FROM NORTHERN IRELAND

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Abstract

New distributional data are provided for thirteen species of caddisfly (Trichoptera) in Northern Ireland. The records of the bog specialists *Limnephilus coenosus* Curtis, 1834 and *L. elegans* Curtis, 1834 are of particular interest.

Key words: Trichoptera, caddisflies, distribution, Northern Ireland, bogs.

Introduction

In September/early October 2017, Cathal McNaughton made further extensive collections of caddisflies (Trichoptera) in north-east Ireland and sent the material to the senior author for identification. He also supplied some photographs of distinctive caddisflies which he had observed several years previously. As a result, new sites were discovered for thirteen species and these data have greatly increased knowledge of their known Irish distributions. Since this information was too late for inclusion in O'Connor and O'Connor (2017), the records are reported here.

The specimens were identified by the senior author using Malicky (2004) and Barnard and Ross (2012). Unless otherwise stated, distributional and ecological data are from O'Connor (2015).

New records

POLYCENTROPODIDAE

***Neureclipsis bimaculata* (Linnaeus, 1758) (Fig. 1)**

DERRY (LONDONDERRY): Coleraine Marina (C8433), east side of the Lower Bann, numerous adults 14 May 2014, C. McNaughton.

Neureclipsis bimaculata was identified from supplied photographs. The species was previously recorded in County Derry near where the Lower Bann flows out of Lough Neagh (O'Connor and O'Connor, 2016). The Coleraine occurrence is slightly before the earliest

reported flight-period of 17 May. The species is probably common all along the Lower Bann.

GLOSSOSOMATIDAE

***Glossosoma boltoni* Curtis, 1834 New to County Antrim (Fig. 2)**

ANTRIM: River Dall (D2327), 2♀♀ 23 September 2017, at the Golf Course, C. McNaughton.

The above record of this widespread species is the most northerly one in Northern Ireland.

LEPIDOSTOMATIDAE

***Crunoecia irrorata* (Curtis, 1834) (Fig. 3)**

ANTRIM: Craigagh Wood, near Glendun River, Cushendun (D2232), 2♂♂ 28 September 2017, C. McNaughton.

Crunoecia irrorata has previously been taken at Belfast and Colin Glen in County Antrim. The Craigagh Wood record is the most northerly occurrence of this widely distributed species in Ireland.

LIMNEPHILIDAE

***Chaetopteryx villosa* (Fabricius, 1798) (Figs 4 and 14)**

ANTRIM: Craigagh Wood, near Glendun River, Cushendun (D2232), adult 5 November 2013, ♂♀ 11 November 2013; Lough Fadden (D1842), Fair Head, 2♂♂ 21 September 2017, collected on the shore-line, ♂♀ 21 September 2017; River Braid (D1103), Ballymena, ♂ 1 October 2017, all C. McNaughton.

The Craigagh Wood and Lough Fadden (♂♀) specimens were identified from supplied photographs. Over 150 years ago, also in September, J. N. Halbert collected two females of *Chaetopteryx villosa* at the lakes on Fair Head, County Antrim (King and Halbert, 1910). It is interesting therefore that the species has been retaken in the same area and month when so few adults have been collected elsewhere in Ireland.

***Anabolia nervosa* (Curtis, 1834) (Fig. 5)**

ANTRIM: Lough Garve (D2117), ♂ 16 September 2017; Lough na Trosk (D2719), 4♂♂1♀ 17 September 2017; Lough na Tullig (D2420), ♂♀ 24 September 2017, all C. McNaughton.

These records are the most north-easterly occurrence of this common species in Ireland. The lakes are on the Garron Plateau, an extensive area of raised bog which includes a number of oligotrophic lakes. Other records from this plateau are given below and in O'Connor and McNaughton (2017), O'Connor, McNaughton and Langton (2017) and O'Connor and O'Connor (2017).

***Limnephilus coenosus* Curtis, 1834 New to County Antrim (Fig. 6)**

ANTRIM: Lough Garve (D2117), ♀ 16 September 2017; Lough na Tullig (D2420), 4♀♀ 24

September 2017, all C. McNaughton.

Limnephilus coenosus is a rare Irish species. Until the present records, only four (♂3♀♀) adults were known from three widely distributed sites on the island. One of these localities was Creggan in County Tyrone. The larvae inhabit small small pools on peat moorland and on the surface of raised bogs. Both Antrim localities are on the Garron Plateau which is one of the most extensive areas of intact upland blanket bog in Northern Ireland (O'Connor and McNaughton, 2017). Irish populations of *L. coenosus* must have been adversely affected by the widespread destruction of peat lands on the island.

***Limnephilus elegans* Curtis, 1834 (Fig. 7)**

ANTRIM: north-eastern extremity of Dungonnell reservoir (D2018), adult 9 June 2012, C. McNaughton.

Limnephilus elegans was identified from a supplied photograph. Like *L. coenosus*, it is a bog species but more widespread, the larvae occurring in small pools among *Sphagnum* and sedges. This is the second record for Northern Ireland. The species was previously collected at Garry Bog, County Antrim. The new site is also on the Garron Plateau.

***Limnephilus lunatus* Curtis, 1834 (Fig. 8)**

ANTRIM: Lough Fadden (D1842), Fair Head, 6♀♀ 21 September 2017; Lough Garve (D2117), ♀ 16 September 2017; Lough na Trosk (D2719), 2♂♂ 17 September 2017, all C. McNaughton.

The Lough Fadden record is the most northerly occurrence of this common species in Northern Ireland.

***Limnephilus marmoratus* Curtis, 1834 (Fig. 9)**

ANTRIM: Lough Fadden (D1842), Fair Head, ♀ 21 September 2017, C. McNaughton.

Surprisingly, there are few records of this common species from Northern Ireland. The Lough Fadden record is its most northerly occurrence in the region.

***Limnephilus nigriceps* (Zetterstedt, 1840) (Fig. 10)**

ANTRIM: Evish Lough (D1918), 3♂♂ 4 October 2017; Lough Garve (D2117), 5♂♂ 15 September 2017 and 6♂♂8♀♀ 16 September 2017; Lough na Tullig (D2420), 17♂♂4♀♀ 24 September 2017, C. McNaughton.

Limnephilus nigriceps has now been found at four lakes on the Garron Plateau. The species was previously known there from Lough na Trosk (O'Connor and McNaughton, 2017).

***Limnephilus stigma* Curtis, 1834 (Fig. 11)**

ANTRIM: Evish Lough (D1918), ♂5♀♀ 4 October 2017; Lough Garve (D2117), ♀ 15 September 2017, all C. McNaughton.

Evish Lough and Lough Garve are the most northerly occurrences of *Limnephilus stigma* in Ireland.

***Halesus digitatus* (Schrank, 1781) New to County Antrim (Fig. 12)**

ANTRIM: Craigagh Wood (near Glendun River) (D2232), ♂♀ 28 September 2017; Waterfoot (D2325), ♀ 30 September 2017, all C. McNaughton.

These sites are the most northerly occurrences of *Halesus digitatus* in Ireland.

***Halesus radiatus* (Curtis, 1834) (Fig. 13).**

ANTRIM: Cranny Water (D2718), ♂ 18 September 2017; Lough Fadden (D1842), Fair Head, 2♀♀ 21 September 2017; Lough Garve (D2117), ♂ 15 September 2017, 5♂♂♀ 16 September 2017; Lough na Tullig (D2420), 3♂♂2♀♀ 24 September 2017; River Braid (D1102), ♂ 15 September 2017, all C. McNaughton.

Previously recorded from Lough na Trosk in County Antrim (O'Connor and McNaughton, 2017). The Lough Fadden record is the most northerly occurrence of this common species in Ireland.

Acknowledgement

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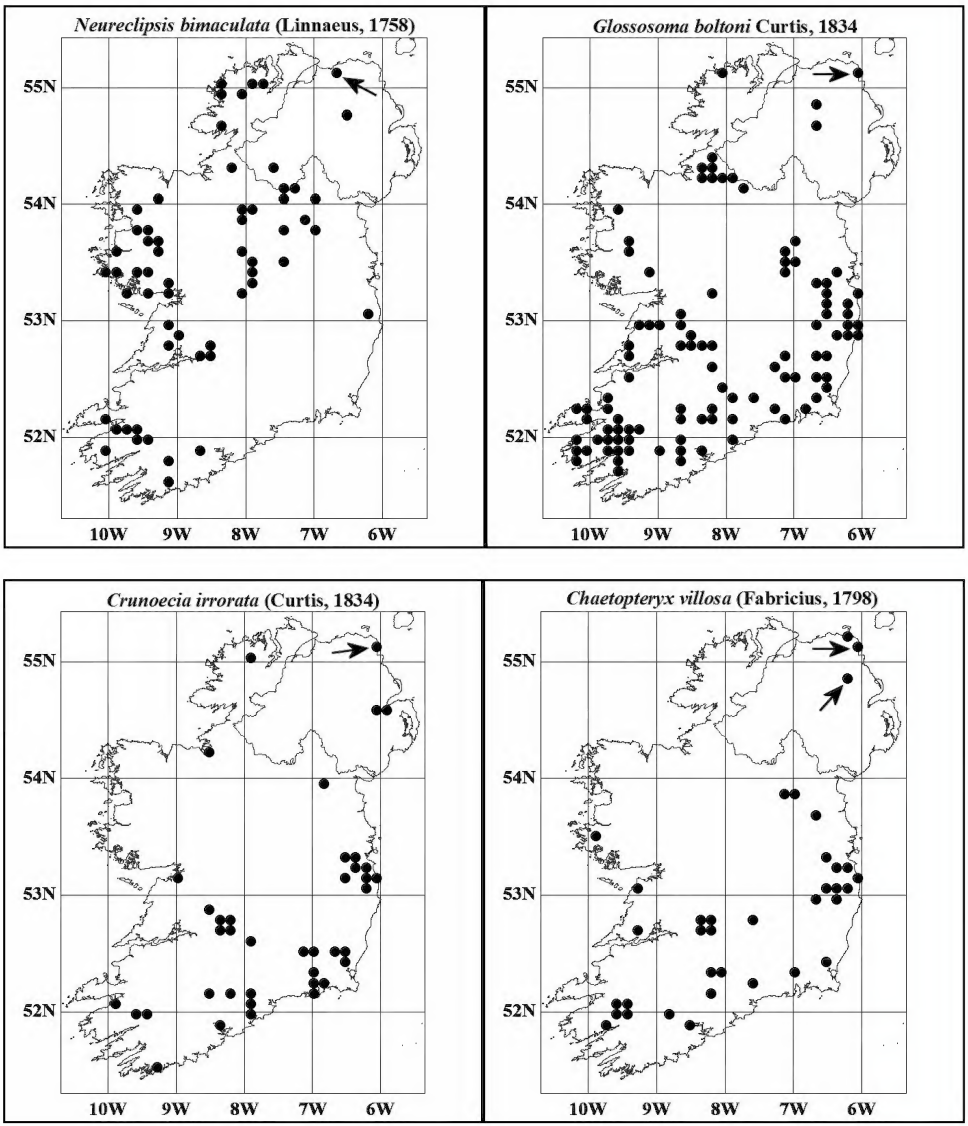
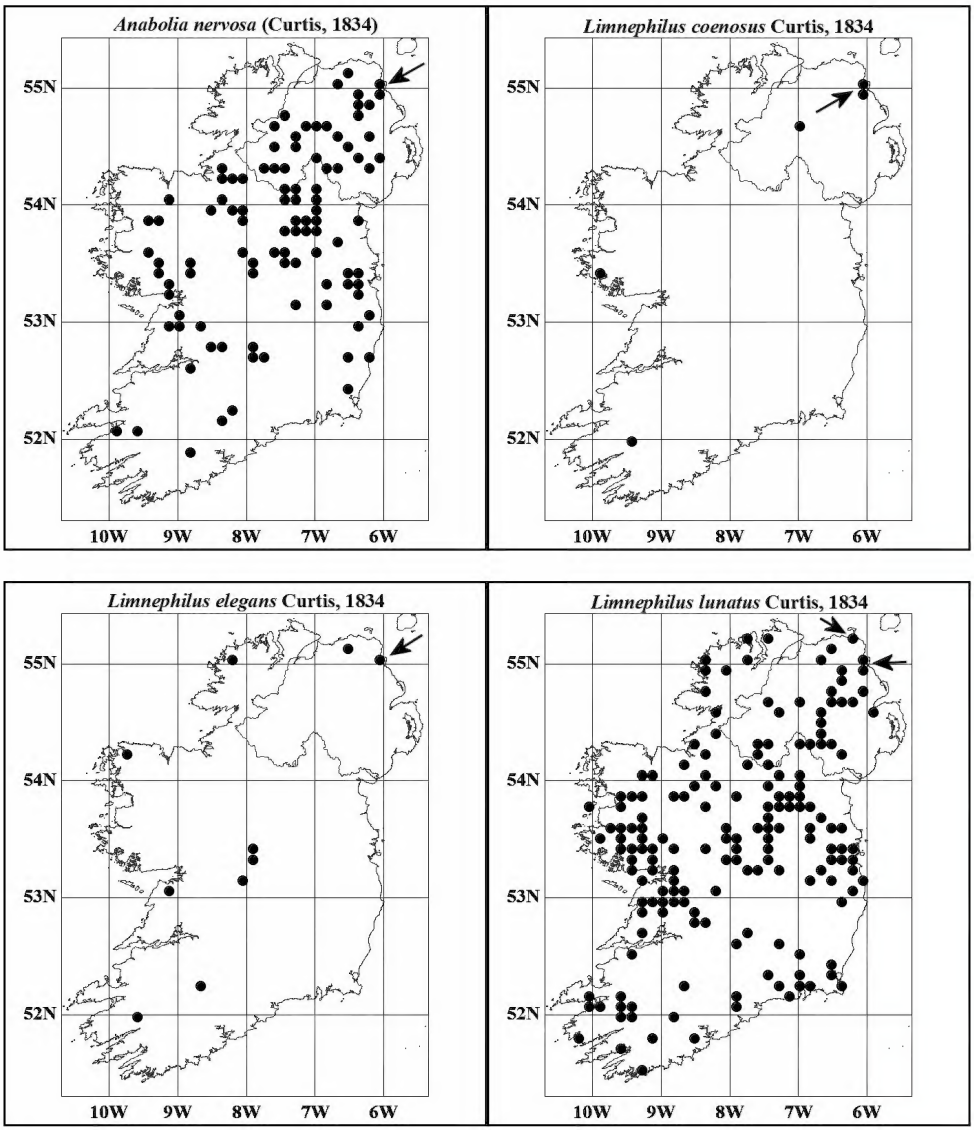
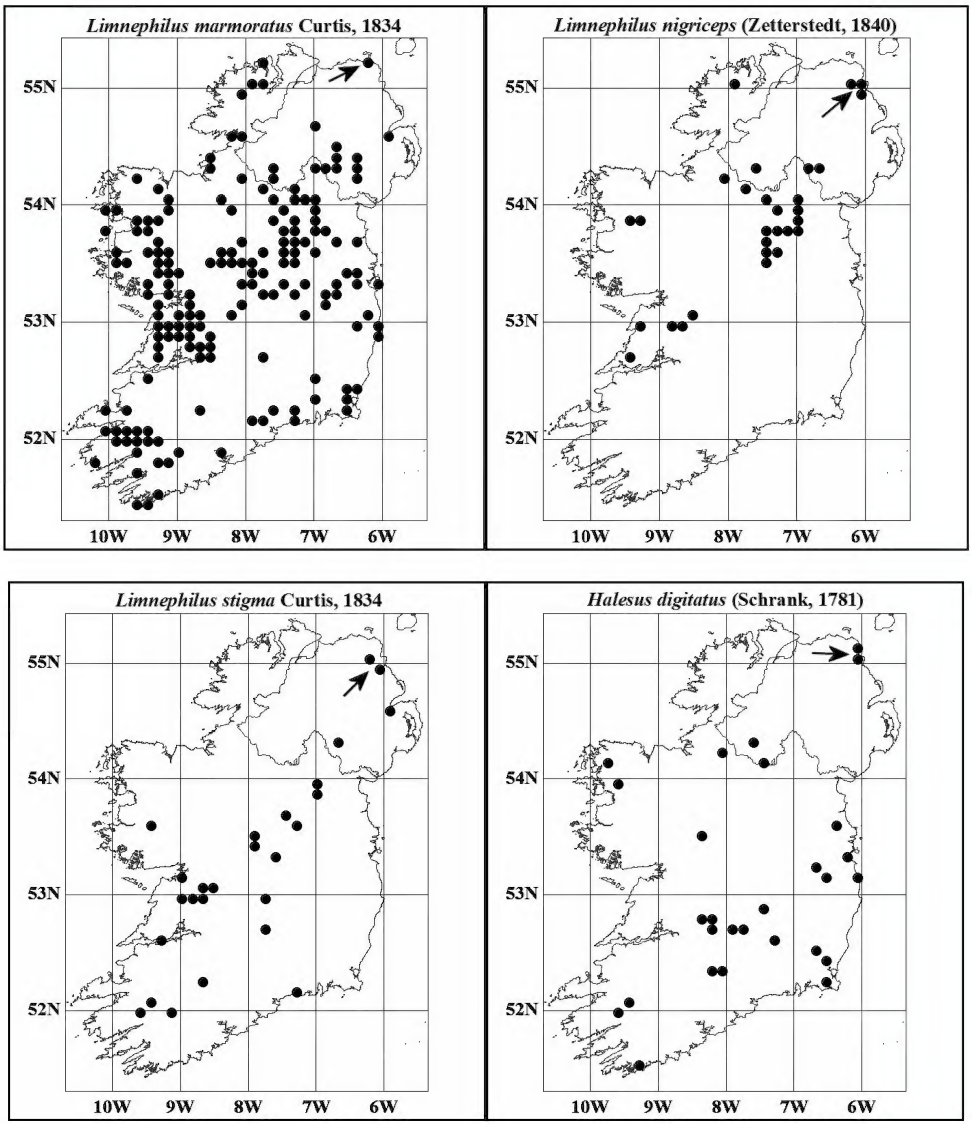


FIGURES 1-4. The known Irish distributions of *Neureclipsis bimaculata* (Linnaeus, 1758), *Glossosoma boltoni* Curtis, 1834, *Crunoecia irrorata* (Curtis, 1834) and *Chaetopteryx villosa* (Fabricius, 1798), The new records are indicated by arrows.



FIGURES 5-8. The known Irish distributions of *Anabolia nervosa* (Curtis, 1834), *Limnephilus coenosus* Curtis, 1834, *Limnephilus elegans* Curtis, 1834 and *Limnephilus lunatus* Curtis, 1834. The new records are indicated by arrows.



FIGURES 9-12. The known Irish distributions of *Limnephilus marmoratus* Curtis, 1834, *Limnephilus nigriceps* (Zetterstedt, 1840), *Limnephilus stigma* Curtis, 1834 and *Halesus digitatus* (Schrank, 1781). The new records are indicated by arrows.

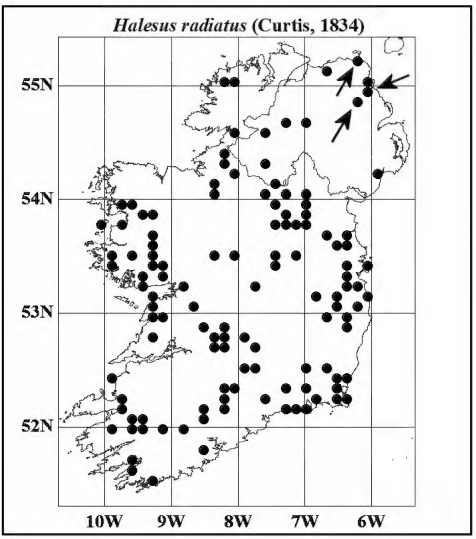


FIGURE 13. The known Irish distribution of *Halesus radiatus* (Curtis, 1834). The new records are indicated by arrows.

FIGURE 14. Adults of *Chaetopteryx villosa* mating in Craigagh Wood, County Antrim. Photograph © Cathal McNaughton.

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ADDITIONAL DISTRIBUTION RECORDS OF CHIRONOMIDAE (INSECTA: DIPTERA) IN IRELAND FROM RECENT AND PAST COLLECTIONS

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Abstract

Distribution data for 73 species of Chironomidae in Ireland is given from examination of specimens, mostly pupal exuviae, in recent faunal collections and in preserved samples from the 1980s. New records of 24 species are given for Counties Carlow, Clare, Cork, Dublin, Mayo, Meath, Monaghan, Roscommon and Tipperary.
Key words: Chironomidae, Diptera, records, distribution, Ireland.

Introduction

Since the publication of the extensive data on the distribution of Chironomidae in Ireland by Murray *et al*. (2013, 2014, 2015), additional records from ongoing faunal inventory studies have been documented (Murray 2016a, b, c, 2017a, b) but unpublished records still remain. The present paper contains additional records of chironomid distribution in Ireland gleaned from three sources: (1) in recent collections by the senior author in 2016 and 2017; (2) from examination of previously unidentified slide preparations of pupal exuviae in the collections of the authors and (3) in preserved sweep-net faunal collections, taken from the littoral region of lakes and ponds the mid 1980s, that contained pupal exuviae.

Recent random opportunistic faunal collections by the senior author, mostly of chironomid pupal exuviae, have yielded additional and new records for Counties Dublin and Meath in Hydrometric Areas 8 and 9. Examination of previously unidentified slide preparations of pupal exuviae in the collections of both authors yielded other records from County Mayo and Hydrometric Area 30. Further records come from identification of pupal exuviae in formalin-preserved collections taken in the littoral areas of small lakes and ponds, mostly in Counties Cork, Galway, Kerry and Roscommon, between 1982 and 1985, by Catherine Duigan, University College Dublin, for her Ph.D. research on Irish *Cladocera* (Crustacea) (Duigan, 1989, 1992). On completion of that research, remnants of the bulk samples, from which Duigan had removed *Cladocera* for her studies, remained in University College Dublin. Recognising the possibility that some of these samples were likely to contain chironomid pupal exuviae, the

senior author ensured they were retained for future examination. The opportunity recently arose to commence this examination. Other records included in this paper are from specimens provided by colleagues and current and former members of the Environmental Protection Agency and the Inland Fisheries Trust (now Inland Fisheries Ireland).

Abbreviations used

DAM – D. A. Murray; EPA – Environmental Protection Agency; HA(s) – Hydrometric Area(s); IFT – Inland Fisheries Trust (now Inland Fisheries Ireland); leg. – collected by; det. – determined by; PJA – P. J Ashe.

Methods

The majority of the records reported are of pupal exuviae identified from Langton and Visser (2003) and some more recent taxonomic works e.g. Stur and Ekrem (2006) and Langton *et al.* (2013). Samples by the authors were collected by skimming surface waters with a fine mesh net to collect floating pupal exuviae as described in Langton and Visser (2003) Aliquots of the older formalin-preserved samples, that had been collected by Duigan (1989) for Cladoceran studies between 1984 and 1986, were examined under 10x or 25x microscopy and chironomid pupal exuviae present were removed. Some exuviae were identifiable to species without mounting but, where necessary, others were slide mounted as temporary mounts in glycerine or as permanent mounts in Euparol. All determinations are by the senior author unless stated otherwise. Records are given by county and hydrometric area (see <www.epa.ie> for details of hydrometric areas in Ireland) along with collection site information, Irish Grid Reference and date of collection, following the protocol in Murray *et al.* (2013).

Results

Records for 73 species within four subfamilies are reported from sixteen counties (Carlow, Clare, Cork, Donegal, Down, Dublin, Galway, Kerry, Leitrim, Mayo, Meath, Monaghan, Roscommon, Sligo, Tipperary and Wicklow) in eighteen hydrometric areas (HAs 5, 7, 8, 9, 10, 21, 22, 25, 26, 27, 28, 29, 30, 33, 34, 35, 36 and 39). Records are given for eleven species in the Subfamily Tanypodinae, one in the Subfamily Diamesinae; twenty seven in the Subfamily Orthocladiinae (including the distinct pupal morphotype of a known but undescribed new species of *Parakiefferiella*) and thirty four species in the Subfamily Chironominae (22 in the tribe Chironomini and 12 in the tribe Tanytarsini).

SUBFAMILY TANYPODINAE

Unless stated otherwise references to previous records of Tanypodinae in Ireland are from Murray *et al.* (2013).

***Ablabesmyia* (*Ablabesmyia*) *phatta* (Egger, 1864)**

DUBLIN, HA 9: Natural Pond, St Stephen's Green (O159334), 9 June 2017, leg. DAM. **ROSCOMMON, HA 26:** Coolagarry Lough, Brideswell, (M900475), 25 April 1986, leg. C. Duigan.

Ablabesmyia phatta is a common species in Ireland but there is only one previous record from County Dublin on the campus of University College Dublin, Belfield. The 1986 record from Roscommon predates three other records in 2008 from that county.

***Arctopelopia greisipennis* (van der Wulp, 1859)**

CORK, HA 21: Lough Avaul, Glengarriff (V910553) and Glenbeg Lough, Ardgroom (V777552), both 19 October 1985, leg. C. Duigan.

This species was previously recorded from HA 21 in County Kerry and from HAs 19 and 20 in County Cork. However, this is the first record of the species from the segment of Hydrometric Area 21 in the Caha Mountain Range, County Cork.

***Anatopynia plumipes* (Fries, 1823) New to CountyMayo and HA 30**

MAYO, HA 30: Lough Mask, Cushlough Pier, Ballinrobe (M153650), 24 March 1996, leg. PJA.

Anatopynia plumipes has been previously recorded from nine scattered locations, mostly in the northern two-thirds of the country. This is the first record from County Mayo and HA 30.

***Macropelopia nebulosa* (Meigen, 1804)**

CLARE, HA 28: limestone pool at Polnabrone Dolmen, Burren (M230005), 13 October 1985, leg. C. Duigan. **DUBLIN, HA 9:** natural pond, St Stephen's Green (O159334), 7 June 2017, leg. DAM. **ROSCOMMON, HA 26:** Coolagarry Lough, Brideswell, (M900475), 25 April 1986, leg. C. Duigan.

Macropelopia nebulosa is a commonly found species in Ireland. There were seven previous records from County Clare - four in HA 25, two in HA 27 and one in HA 28. The earliest of these was in collections by J. P. O'Connor from HA 25 in September 1973. There were two previous records from County Dublin and three from County Roscommon.

***Procladius* (*Holotanypus*) *choreus* (Zetterstedt, 1850)**

CLARE, HA 27: Lough Aleenaun, Deerpark, Kilfenora (R250954), 13 October 1985, leg. C. Duigan.

Procladius choreus is a widespread species throughout Ireland. There are over 20 previous records from County Clare, 11 in HA 27.

***Procladius* (*Holotanypus*) *signatus* (Zetterstedt, 1850) New to HA 21**

CORK, HA 21: Lough Drumbrow, Bantry (W034507), 20 October 1985, leg. C. Duigan.

There is one previous record of this species in County Cork from HA 19, Iniscarra Reservoir, but this is the first record from Hydrometric Area 21 in the county.

***Psectrotanypus varius* (Fabricius, 1787)**

DUBLIN, HA 9: Farmleigh Pond, Phoenix Park (O093362), 29 September 2016, leg. M. A. O'Connor.

There are seven previous records of this species in HA 9, six in County Dublin and one in the adjoining County Kildare.

***Tanypus* (*Tanypus*) *punctipennis* Meigen, 1818 New to County Dublin and HA 9**

DUBLIN, HA 9: natural pond, St Stephen's Green (O159334), 7 June 2017, leg. DAM.

There are only four previous records of *Tanypus punctipennis* in Ireland. It was first collected in Muckross Lake, Killarney, County Kerry in 1973 and reported by Douglas and Murray (1980). Other records are from the east midlands in Counties Leitrim, Meath and Offaly. This is the first record of the species from County Dublin and HA 9.

***Thienemannimyia laeta* (Meigen, 1818)**

GALWAY, HA 30: River Clare, Coarsfield (M322328), 11 August 1971, leg. IFT.

Thienemannimyia laeta has been rarely encountered in Ireland. There are just 14 previous records, one of which is also in HA 30, County Galway.

***Xenopelopia falcigera* (Kieffer, 1911) New to County Tipperary and HA 25**

TIPPERARY, HA 25: pond at Leserragh House, Coolbaun (R824934), 12 October 1982, leg. C. Duigan.

There are only seven previous records of *Xenopelopia falcigera* in Ireland. It was first collected in Counties Cavan and Meath in 1968 and reported by Murray (1972). Exuviae in the collections by C. Duigan from 1982 at the Leserragh House pond provide the first and only record of the species from County Tipperary and HA 25.

***Zavrelimyia* (*Zavrelimyia*) *nubila* (Meigen, 1830)**

MEATH, HA 8: water barrel, Meadesbrook, Kilmoon (O040594), 15 July and 7 August 2017, leg. DAM.

Thus far *Zavrelimyia nubila,* whose larvae typically dwell in stagnant waters in small pools and in man-made ephemeral habitats such as garden ponds, is only known in Ireland from two locations in County Meath. The species was first collected in 1968 (Murray, 1972) at the same site of the records reported here from 2017.

SUBFAMILY DIAMESINAE

***Protanypus morio* (Zetterstedt, 1838)**

MAYO, HA 33: Lough Carrowmore, Derreens (north shore), Bangor Erris (F833299), 24 March 1996, leg. PJA.

Larvae of *Protanypus morio* are lake dwellers and most records in Ireland are from lakes in the south-west, west and north of the country. There are over 80 records, 13 from County Mayo, five of which are also in HA 33. The record reported here from samples collected at L. Carrowmore in 1996 predates other records from the lake reported in Murray *et al.* (2013).

SUBFAMILY ORTHOCLADIINAE

Unless stated otherwise references to previous records of *Orthocladiinae* in Ireland are from Murray *et al.* (2014).

***Acricotopus lucens* (Zetterstedt, 1850)**

CORK, HA 21: Lough Avaul, Glengarriff (V910553), 19 October 1985 and Lough Drumbrow, Bantry (W034507), 20 October 1985, leg. C. Duigan.

There are three previous records of *Acricotopus lucens* from County Cork, one each in HAs 19, 20 and 21, but it is also known from a site in HA 21 in County Kerry. The first record of the species in HA 21, County Cork was from collections in 1969 at Lough Reenydonegan reported by Bracken and Murray (1973).

***Bryophaenocladius subvernalis* (Edwards, 1929) New to County Meath, HA 8 and HA 30**

MAYO, HA 30: Lough Carra, Brownstown (M196705) and Lough Mask, Cushlough Pier, Ballinrobe (M153650), 24 November 1996, leg. and det. PJA. **MEATH, HA 8:** Meadesbrook, Kilmoon (O040594), 12 November 2016, leg. DAM.

Most *Bryophaenocladius* species are terrestrial or semi-terrestrial and since such habitats have been less frequently sampled, records are sparse. There is one existing record from County Mayo in HA 32 but the records from Loughs Carra and Mask are the first records from HA 30. *B. subvernalis* has not previously been found in County Meath or HA 8.

***Corynoneura arctica* Kieffer, 1923**

CLARE, HA 27: Lough George, Corrofin (R338907), 3 November 1985, leg. C. Duigan.

There are seven previous records of *Corynoneura arctica* from three locations in HA 27, County Clare. The record cited here from 1985 pre-dates existing records of the species in Ireland.

***Corynoneura scutellata* Winnertz, 1846**

ROSCOMMON, HA 26: Briarsfield Turlough, Tulsk (M815760), 25 April 1986, leg. C. Duigan.

This is the second record of *Corynoneura scutellata* in County Roscommon and HA 26.

***Cricotopus* (*Isocladius*) *intersectus* (Staeger, 1839) New to County Dublin and HA 9**

DUBLIN, HA 9: fountain pond (west), St Stephen's Green (O159334), 7 June 2017, leg. DAM. **LEITRIM, HA 26:** Lough Gortinty, Drumsna (N018946), 25 October 1985, leg. C. Duigan.

The record from St Stephen's Green pond is the first record of the species from HA 9 and County Dublin. There are three existing records from HA 26 in County Leitrim and a fourth record from County Westmeath.

***Cricotopus* (*Isocladius*) *sylvestris* (Fabricius, 1794)**

CORK, HA 21: Lough Bofinna, Bantry (W041487), 20 October 1985, leg. C. Duigan. **DOWN, HA 5:** Lough Tullynagee, Tullynagee, Lisbane, (J470630), 19 June 2017, leg. J. P. and M.A. O'Connor. **DUBLIN, HA 9:** Library pond, Dun Laoghaire (O245288), 25 May 2017 and circular fountain pond (west), St Stephen's Green (O159334), 9 June 2017, leg. DAM. **ROSCOMMON, HA 26:** Briarsfield Turlough, Tulsk (M815760), 25 April 1986, leg. C. Duigan.

Cricotopus sylvestris is a very common species in Ireland. There are six previous records from County Cork, one in HA 19, four in HA 20 and one in HA 21 that was given by Bracken and Murray (1973). Langton (2002) gave three records from County Down and HA 5. There were two previous records from HA 9 in County Dublin, one of which was from studies on the River Dodder by C. F. Humphries in 1947. There were three previous records in County Roscommon from HA 26.

***Diplocladius cultriger* Kieffer, 1908 New to County Mayo and HA 33**

MAYO, HA 33: Lough Carrowmore, Bangor Erris, Derreens, north shore (F833299), 24 March 1996, leg. PJA.

There were only three previous records of this species in Ireland in Counties Derry, Kildare, and Meath. The record from Lough Carrowmore is not only the first from County Mayo and HA 33 but also the first record of the species from the west of Ireland.

***Heterotanytarsus apicalis* (Kieffer, 1921)**

CORK, HA 21: Lough Derryvegall (V650555) and Lough Fadda (V658541), 19 October 1985, leg. C. Duigan. **GALWAY, HA 30:** River Clare, Coarsfield (M322328), 11 August 1971, leg. IFT; Ross Lake, Moycullen (M204365), 2 November 1985, leg. C. Duigan. **KERRY, HA 21:** Lough Glanmore (V777552), 19 October 1985, leg. C. Duigan.

There are numerous records of *Heterotanytarsus apicalis* in County Cork from HAs 19 and 20. However, while records exist from HA 21 in County Kerry, the records from Loughs Derrvegall and Fadda are the first records from that hydrometric area in County Cork. The species is widespread in County Galway with at least 37 existing records, 17 of which lie in HA 30.

***Heterotrissocladius grimshawi* (Edwards, 1929)**

CORK, HA 21: Lough Pulleen, Cahergarriff (V646434) and Lough Fadda (V658541), Ardgroom, 19 October 1985, leg. C. Duigan.

There are two existing records of *Heterotrissocladius grimshawi* in County Cork, one each in HA 20 and HA 21.

***Limnophyes gurgicola* (Edwards, 1929)**

DUBLIN, HA 9: Royal Canal, Ashtown (O108378), 25 May 1968, leg. DAM.

There were two existing records from HA 9 and County Dublin. The recent discovery of a previously unidentified slide preparation from 1968, in the collections of the senior author, is an additional distribution record for the species in this region.

***Limnophyes pumilio* (Holmgren, 1869) New to County Dublin and HA 9**

DUBLIN, HA 9: pond, St Stephen's Green (O159334), 9 June 2017, leg. DAM.

This new record for County Dublin and HA 9 is the first record of the species from the east of Ireland. Existing records are in Counties Clare, Derry, Donegal, Kerry, Leitrim and Mayo.

***Metriocnemus* (*Inermipupa*) *carmencitabertarum* Langton and Cobo, 1997**

DUBLIN, HA 9: water feature, Garden of Remembrance, Parnell Square (O155351), 7 July 2017. **MEATH, HA 7:** water barrel, Ardsallagh, Navan (N896635), 7 August 2017; **HA 8** bucket in yard, Meadesbrook, Kilmoon (O040594), 7 July and 7 August 2017, all leg. DAM.

Metriocnemus carmencitabertarum is a recent immigrant species to Ireland that favours ephemeral habitats (Murray, 2013). Typically found in small vessels in which rainwater accumulates, it has been reported since 2012 from the above two sites in HA 7 and HA 8 in County Meath and from one site in HA 9 in County Dublin. The recent finding of the characteristic pupal exuviae in the Garden of Remembrance provides an additional distribution record for the species in County Dublin.

***Metriocnemus* (*Metriocnemus*) *albolineatus* (Meigen, 1818) New to County Meath and HA 8**

MEATH, HA 8: Meadesbrook, Kilmoon (O040594), 22 October 2016, adult male captured at window, leg. DAM.

There are only five previous records of *Metriocnemus albolineatus* in Ireland in Counties Derry, Dublin and Galway but this is the first record from County Meath and HA 8.

***Metriocnemus* (*Metriocnemus*) *eurynotus* (Holmgren, 1883) New to County Clare and HA 28**

CLARE, HA 28: limestone pool at Polnabrone Dolmen, The Burren (M230005), 13 October 1985, leg. C. Duigan.

This is the first record for County Clare and HA 28. The species is already known from neighbouring County Galway in HA 29.

***Orthocladius* (*Eudactylocladius*) *fuscimanus* (Kieffer, 1908) New to County Dublin and HA 9**

DUBLIN, HA 9: fountain pond (west), St Stephen's Green, (O159334), 9 June 2017, leg. DAM.

Larvae of *Orthocladius fuscimanus* are typical denizens of hygropetric habitats. The species is common in such habitats in Ireland and is known from over 30 locations scattered throughout the country but this is the first record from HA 9 and County Dublin.

***Orthocladius* (*Orthocladius*) *glabripennis* (Goetghebuer, 1921) New to County Cork and HA 21**

CORK, HA 21: Glenbeg Lough, Ardgroom (V777552), 19 October 1985, leg. C. Duigan.

There are over 12 records of *Orthocladius glabripennis* in Ireland but the pupal exuviae in the collection from Glenbeg Lough in 1985 provide the first record of the species in the southwest of the country in County Cork and HA 21.

***Orthocladius* (*Orthocladius*) *rubicundus* (Meigen, 1818)**

GALWAY, HA 30: River Clare, Coarsfield (M322328), 11 August 1971, leg. IFT.

Orthocladius rubicundus is the most commonly found species of *Orthocladius* in Ireland. There are 11 previous records from County Galway, three of which lie in HA 30. It is also known in County Galway from three locations in HA 25, one in HA 26, and two each in HA 31 and HA 32.

***Orthocladius* (*Pogonocladius*) *consobrinus* (Holmgren, 1869)**

MAYO, HA 30: Lough Carra, Brownstown (M196705), 24 November 1996; **HA 33** Lough Carrowmore, north-west shore at pump house (F811306), 22 August 1996, both leg. and det. PJA.

There are over 20 existing records of this species from County Mayo, two in HA 30 and four in HA 33 to which the above new distribution records are added.

***Parakiefferiella bathophila* (Kieffer, 1912)**

CORK, HA 21: Lough Avaul, Glengarriff (V910553), 19 October 1985, leg. C. Duigan.

There are eight existing records of *Parakiefferiella bathophila* from County Cork, two in HA 19, four in HA 20 and two in HA 21 to which this record from 1985 in Lough Avaul is now added.

***Parakiefferiella smolandica* (Brundin, 1947) New to HA 34**

MAYO, HA 34: Lough Conn, Townaghmore (G226062), 26 May 1996, leg. PJA.

There are four existing records from County Mayo for *Parakiefferiella smolandica*, one in HA 26 and three in HA 32. The record from Lough Conn is the first for the species in HA 34.

***Parakiefferiella* sp pe1 sensu Reiss (in Langton and Visser, 2003)**

MAYO, HA 34: Lough Conn, Townaghmore (G226062), 26 May 1996, leg. PJA.

The characteristic pupal exuviae of this undescribed species, first recognised from Lake Constance (Bodensee) by Reiss (1968), have previously been found at 16 locations mostly in the north, north midlands and west of Ireland. In County Mayo, it is already on record from HA 34 at Lough Cullin and thus the new record from Lough Conn, connected to Lough Cullin at Pontoon, is not unexpected.

***Psectrocladius* (*Mesopsectrocladius*) *barbatipes* Kieffer, 1923**

CORK, HA 21: Lough Avaul, Glengarrif (V910553) and Lough Derryvegall, Ardgroom (V650555), 19 October 1985, leg. C. Duigan.

There are two existing records in County Cork of *Psectrocladius barbatipes* in HA 20 but these are the first records for the section of HA 21 lying in the county. There are five records of the species in HA 21 in County Kerry.

***Psectrocladius* (*Psectrocladius*) *limbatellus* (Holmgren, 1869) New to HA 29**

DUBLIN, HA 9: library pond, Dun Laoghaire (O245288), 31 May 2017; main pond, St Stephen's Green (O159334), 9 June 2017 and water feature, Garden of Remembrance, Parnell Square (O155351), 7 July 2017, all leg. DAM. **MEATH, HA 8:** barrel, Meadesbrook, Kilmoon (O040594), 7 July 2017, leg. DAM. **GALWAY, HA 29:** Turlough na Nean, Gort (R430989), 10 May 1986, leg. C. Duigan.

Psectrocladius limbatellus is a common species frequently found in animal drinking troughs, outdoor water containers as well as in small lakes and ponds. Records from County Dublin in HA 9 as well as from County Meath in HA 8 already exist. However, while there are records from County Galway in HA 30, there are no previous records from HA 29.

***Psectrocladius* (*Psectrocladius*) *psilopterus* (Kieffer, 1906)**

ROSCOMMON, HA 26: Briarsfield Turlough, Tulsk (M815760) and Coolagarry Lough, Brideswell, (M900475), 25 April 1986, leg. C. Duigan.

There are thirteen previous records of *Psectrocladius psilopterus* from HA 26, five of which are in County Roscommon. The species is also known from HA 26 in the neighbouring Counties of Leitrim, Longford, Mayo and Sligo.

***Psectrocladius* (*Psectrocladius*) *sordidellus* (Zetterstedt, 1838) New to County Dublin and HA 9**

CORK, HA 21: Lough Fadda, Ardgroom (V658541), 19 October 1985 and Lough. Bofinna, Bantry (W041487) 20 October 1985, leg. C. Duigan. **DUBLIN, HA 9:** library pond, Dun Laoghaire (O245288), 31 May 2017, leg. DAM. **ROSCOMMON, HA 26:** Coolagarry Lough, Brideswell, (M900475), 25 April 1986, leg. C. Duigan.

Psectrocladius sordidellus is already known from six locations in County Cork, two each in HA 19 and HA 20 and from four locations in HA 21. The record from the library pond in Dun Laoghaire is the first record of the species from County Dublin and HA 9. There is one previous

record from County Roscommon in HA 26.

***Synorthocladius semivirens* (Kieffer, 1909)**

KERRY, HA 21: Lough Glanmore, north-east shore, Lauragh (V777552), 19 October 1985, leg. C. Duigan. **SLIGO, HA 35:** Lough Labe (Na Leibe), Ballymote (G726126), 27 October 1984, leg. C. Duigan.

Synorthocladius semivirens in widespread in Ireland with records from many locations, including over 26 records from HA 21 in County Kerry. There are 24 previous records from HA 35, 13 of which are in County Sligo.

***Tvetenia verralli* (Edwards, 1929)**

KERRY, HA 21: Lough Glanmore, North-east shore, Lauragh (V777552), 19 October 1985, leg. C. Duigan.

Tvetenia verralli is a widespread species in rivers and streams in Ireland with records existing from over 120 locations. Until now there were records from 12 locations in County Kerry only one of which lies in HA 21. The remaining 11 locations are in HA 22.

SUBFAMILY CHIRONOMINAE

Unless stated otherwise references to previous records of Chironominae in Ireland are from Murray *et al.* (2015).

Tribe Chironomini

***Benthalia carbonaria* (Meigen, 1804)**

synonym *Lobochironomus dissidens* (Walker, 1856)

MAYO, HA 33: Lough Carrowmore, at boat slip on west shore (F830282), 17 July 1996, leg. PJA.

This species is already on record from Mayo in HAs 30 and 34 but this is the first record from the north west of the county in HA 33, the Blacksod-Broadhaven river catchments.

***Chironomus* (*Chironomus*) *aprilinus* Meigen, 1818**

DONEGAL, HA 39: Blanket Nook Lagoon, Newtown Cunningham (C309194), 21 July 2003, leg. G. Oliver.

Larvae of this species are saline tolerant. There are 19 previous records from 12 scattered coastal locations in Ireland, including one in HA 39 in County Donegal.

***Chironomus* (*Chironomus*) *commutatus* Keyl, 1960 New to County Cork and HA 21**

CORK, HA 21: Lough Pulleen, Cahergarriff (V646434), 19 October 1985, leg. C. Duigan.

There are 12 previous records in Ireland for *Chironomus commutatus* but the species has not previously been recorded in County Cork or HA 21.

***Chironomus* (*Chironomus*) *luridus* Strenzke, 1959**

MEATH, HA 8: garden barrel, Meadesbrook, Kilmoon (O040594), 15 July 2017, leg. DAM.

Larvae of *Chironomus luridus* are common in small water bodies including buckets, barrels and exposed rainwater-containing vessels. There are ten previous records from County Meath since 1986 at the site of the recent record in July 2017.

***Chironomus* (*Chironomus*) *nuditarsis* Keyl, 1961 New to County Dublin and HA 9**

DUBLIN, HA 9: main pond, St Stephen's Green (O159334), 9 June 2017, leg. DAM.

There are 23 previous records of *Chironomus nuditarsus* in Ireland mostly in the north and west of the country. It was recently reported from the adjoining County Meath in HA 8 (Murray, 2016b) but this is the first record from HA 9 in County Dublin.

***Chironomus* (*Chironomus*) *pallidivittatus* Edwards, 1929 New to County Dublin and HA 9**

DUBLIN, HA 9: circular fountain pond, St Stephen's Green (O159334), 9 June 2017, leg. DAM.

There are 13 previous records of *Chironomus pallidivittatus* in Ireland whose larvae are mildly tolerant of organic pollution. The record from the pond in St Stephen's Green is the first record of the species from County Dublin and HA 9.

***Chironomus* (*Chironomus*) *piger* Strenzke, 1956 New to Dublin and HA 9**

DUBLIN, HA 9: library pond, Dun Laoghaire (O245288), 31 May 2017, leg. DAM.

Larvae of *Chironomus piger* occur frequently in ponds, pools and man-made water features such as the artificial pond at the library in Dun Laoghaire, the site of this first record of the species from County Dublin and HA 9.

***Chironomus* (*Chironomus*) *plumosus* (Linnaeus, 1758)**

DUBLIN, HA 9: main pond, St Stephen's Green (O159334), 7 June 2017, leg. DAM.

There are numerous records of *Chironomus plumosus* which has a widespread distribution in Ireland whose larvae live in eutrophic lakes, ponds and organically enriched habitats. There is one previous record of the species from HA 9 in County Dublin.

***Chironomus riparius* Meigen, 1804 New to County Dublin and HA 9**

DUBLIN, HA 9: water feature, Garden of Remembrance, Parnell Square (O155351), 7 July 2017, leg. DAM. **ROSCOMMON, HA 26:** Coolagarry Lough, Brideswell, (M900475), 25 April 1986, leg. C. Duigan.

There are over 20 previous records of *Chironomus riparius* in Ireland but surprisingly it has not been previously documented for County Dublin or HA 9. There is one previous record from County Roscommon and HA 26.

***Chironomus* (*Chironomus*) *salinarius* Kieffer, 1915**

DONEGAL, HA 39: Blanket Nook Lagoon, Newtown Cunningham (C309194), 21 July 2003, leg. G. Oliver.

Larvae of *Chironomus salinarius*, as its species epithet implies, are tolerant of saline conditions. There are six previous records, including two from Lough Swilly adjacent to the site

for the record from Blanket Nook Lagoon.

***Chironomus* (*Chironomus*) *tentans* Fabricius, 1805**

MAYO, HA 30: Lough Mask, Cushlough Pier, Ballinrobe (M153650), 26 July 1996, leg. PJA.

There are over 60 records of *Chironomus tentans* in Ireland including ten from HA 30 with three of these from other locations in Lough Mask. The first record from Ireland was collected at Lough Mask in 1966 and reported by Murray (1972) as *Camptochironomus tentans.*

***Cryptochironomus denticulatus* (Goetghebuer, 1921) New to County Carlow and HA 12**

CARLOW, HA 12: River Derreen, Acann Bridge (S900781), 29 July 1981, leg. B. Hayes.

There are five previous records of *Cryptochironomus denticulatus* in Ireland. The record cited here as new for County Carlow and HA 12 is from a recent examination of a pupal exuviae slide preparation labelled as "*Cryptochironomus* sp. indet" by Hayes (1991).

***Cryptochironomus obreptans* (Walker, 1856)**

MAYO, HA 30: Lough Mask, Cushlough Pier, Ballinrobe (M153650), 26 May 1996, leg. PJA.

This is a common species in Ireland with over 80 records countrywide, ten of which are from County Mayo in HAs 26, 32 and 33. While there are two records from HA 30 in County Galway, this is the first record of the species from the section of HA 30 catchment in County Mayo.

***Demicryptochironomus* (*Demicryptochironomus*) *vulneratus* (Zetterstedt, 1838)**

MAYO, HA 33: Lough Carrowmore, northwest shore, at a pump house (F811306), 26 May 1996, leg. and det. PJA.

This species has a widespread distribution and is known from over 100 locations in the country. There are 14 existing records from County Mayo, four of which are in HA 33. Two of the latter records are also from Lough Carrowmore, but the record documented here is some 12 years earlier than those in Murray *et al.* (2015).

***Dicrotendipes notatus* (Meigen, 1818) New to County Dublin**

DUBLIN, HA 9: fountain pond (west), St Stephen's Green (O159334), 9 June 2017, leg. DAM.

MAYO, HA 30: Lough Mask, Cushlough Pier, Ballinrobe (M153650), 24 November 1996, leg. and det. PJA.

There are existing records of this species from 17 locations in Ireland. It is already on record from HA 9, in County Kildare, but the record from St Stephen's Green pond is the first record of the species in County Dublin in HA 9. There is one existing record from HA 32 in County Mayo but there are no previous records from the section of the HA 30 catchment in the county.

***Glyptotendipes* (*Glyptotendipes*) *cauliginellus* (Kieffer, 1913)**

CORK, HA 21: Lough Drumbrow, Bantry (W034507), 20 October 1985, leg. C. Duigan.

There are over 80 records of this species in Ireland with six previous records from County Cork, one in HA 19, three in HA 20 and two in HA 21 that were first reported by Bracken and

Murray (1973). It is also known from four other locations in HA 21 in County Kerry.

***Glyptotendipes* (*Glyptotendipes*) *glaucus* (Meigen, 1818) New to County Monaghan**

MONAGHAN, HA 36: Lough Cloonkeen, Clones (H508246), 19 May 1964, leg. DAM.

Recent examination of a previously unidentified slide preparation in the senior author's collection from 1964 yielded this new record of *Glyptotendipes glaucus* from the section of HA 36 in County Monaghan. The record from 1964 predates the other eight records documented from HA 36 in County Fermanagh, Northern Ireland by Langton (2002) and later in Murray *et al*. (2015).

***Glyptotendipes* (*Glyptotendipes*) *paripes* (Edwards, 1929)**

MAYO, HA 33: Lough Carrowmore, Bangor Erris, Derreens (F833299), 17 August 1996, leg. PJA.

This species is known from over 90 locations in Ireland and at five locations in County Mayo including a record from Lough Carrowmore from 2008 some 12 years after the species was first collected at this lake in 1996.

***Microtendipes chloris* (Meigen, 1818)**

MEATH, HA 8: outdoor water tank, Meadesbrook, Kilmoon (O040594), 15 July and 7 August 2017, leg. DAM. **ROSCOMMON (HA 26):** Briarsfield Turlough, Tulsk (M815760) and Coolagarry Lough, Brideswell, (M900475), 25 April 1986, leg. C. Duigan.

Microtendipes chloris is common in Ireland with records from over 70 locations (Murray *et al*., 2015). The species has already been recorded from HA 8, County Meath (one record) and from HA 26 in County Roscommon (three records).

***Parachironomus gracilor* (Kieffer, 1918)**

synonym *Parachironomus arcuatus* (Goetghebuer, 1919)

DUBLIN, HA 9: fountain pond, St Stephen's Green (O159334), 9 June 2017, leg. DAM. **MAYO, HA 33:** Lough Carrowmore, northwest shore at a pump house (F811306), 22 August 1996, leg. and det. PJA. **MONAGHAN, HA 36:** Lough Eagish, Castleblaney (H981138), 24 June 1997, leg. PJA. **ROSCOMMON, HA 26:** Briarsfield Turlough, Tulsk (M815760), 25 April 1986, leg. C. Duigan.

Parachironomus gracilor is a common species in lakes and ponds with over 100 records from scattered locations in Ireland. Published records already exist from the four counties and hydrometric areas cited here. There are two previous records in County Dublin from 1987 in HA 9. There are four published records from HA 33 in County Mayo, three from HA 36 in County Monaghan and seven from HA 26 in County Roscommon. However, the records documented here predate existing published records in each of these three counties and hydrometric areas.

***Polypedilum* (*Pentapedilum*) *tritum* (Walker, 1856) New to County Roscommon**

ROSCOMMON, HA 26: Coolagarry Lough, Brideswell, (M900475), 25 April 1986, leg. C. Duigan.

First reported in Ireland in 1966 (Murray, 1972), there now exist records of this species from 18 locations in Ireland among which is one record in 2005 from HA 26 in County Leitrim. The record from Coolgarry Lough in the 1986 samples examined provides the first record from County Roscommon and the earliest record of the species in HA 26.

***Polypedilum* (*Uresipedilum*) *cultellatum* Goetghebuer, 1931**

GALWAY, HA 30: Lough Corrib Upper, Oughterard (M138486), 11 June 2007, leg. EPA.

There are 45 records of *Polypedilum cultellatum* in Ireland, four from HA 30 Galway the earliest of which was in 1981 reported by Hayes (1991). The record documented here, from samples of pupal exuviae collected by research officers of the Environmental Protection Agency, was inadvertently omitted in Murray *et al.* (2015).

Tribe Tanytarsini

***Cladotanytarsus vanderwulpi* (Edwards, 1929)**

KERRY, HA 21: Lough Glanmore, north-east shore, Lauragh (V777552), 19 October 1985, leg. C. Duigan.

There are records of *Cladotanytarsus vanderwulpi* from over sixty locations in Ireland, including three previous records from HA 21 in County Kerry, two of which date from 1983 (Murray *et al.*, 2015).

***Micropsectra lindrothi* Goetghebuer, 1931**

DUBLIN, HA 9: library pond, Dun Laoghaire (O245288), 31 May 2017 and circular fountain pond (west), St Stephen's Green (O159334), 9 June 2017, leg. DAM.

Micropsectra lindrothi is on record from over 60 locations in Ireland but there is just one previous record in HA 9 in County Dublin from a pond in the Belfield Campus of University College Dublin.

***Micropsectra notescens* (Walker, 1856)**

MEATH, HA 8: garden water tank, Meadesbrook, Kilmoon (O040594), 25 February, 14 and 17 March and 12 November 2016, leg. DAM.

There are over 70 records of this common species from 47 locations in Ireland. It has already been documented from County Meath and HA 8 (Murray, 2016a).

***Micropsectra pallidula* (Meigen, 1830) New to HA 21**

CORK, HA 21: Lough Drumbrow, Bantry (W034507), 20 October 1985, leg. C. Duigan.
KERRY, HA 22: River Flesk, Killarney, bridge on Muckross Road (V963885), 20 December 1976, leg. PJA.

Micropsectra pallidula is widespread in Ireland and is on record from over 110 locations. However, although there are records from five locations in County Cork, it has not been recorded previously from HA 21. There are three documented records from HA 22 in County Kerry, one from a small tributary of the River Flesk.

***Micropsectra roseiventris* (Kieffer, 1909) New to County Roscommon**

ROSCOMMON, HA 26: Briarsfield Turlough, Tulsk (M815760) and Coolagarry Lough, Brideswell, (M900475), 25 April 1986, leg. C. Duigan. **WICKLOW, HA 10:** bog pool near Lower Lough Bray, Glencree (O140163), 3 October 1982, leg. C. Duigan.

Larvae of *Micropsectra roseiventris* are commonly found in mountain lakes, bog pools and occasionally in rivers. Records already exist from HA 10 in County Wicklow. However, while records also exist for HA 26, the pupal exuviae collected in 1986 at Briarsfield Turlough and Coolgarry Lough provide the first records of the species from County Roscommon.

***Paratanytarsus dissimilis* (Johannsen, 1905) New to County Dublin and HA 9**

DUBLIN, HA 9: library pond, Dun Laoghaire (O245288), 31 May 2017, leg. DAM.

Paratanytarsus dissimilis is known from over 50 locations in Ireland in lakes, ponds and man-made pools. The pupal exuviae collected from the artificial pond at Dun Laoghaire provide the first record of the species in County Dublin and HA 9.

***Stempellinella brevis* (Edwards, 1929)**

CORK, HA 21: Lough Fadda, Ardgroom (V658541), 19 October 1985, leg. C. Duigan.

There are 14 previous records of *Stempellinella brevis* from HA 21 but only two records, from collections in 2008, from the section of HA 21 lying in County Cork. The sample from Lough Fadda provides the earliest record of the species for County Cork.

***Tanytarsus gregarius* Kieffer, 1909**

CORK, HA 21: Lough Bofinna, Bantry (W041487) and Lough Drumbrow, Bantry (W034507), 20 October 1985 and Lough Pulleen, Cahergarriff (V646434) 19 October 1985, leg. C. Duigan.

Tanytarsus gregarius is a relatively common species in Irish lakes and is already on record from 72 locations. There are three previous records from County Cork in HA 21, the earliest of which was from 1969 reported by Bracken and Murray (1973).

***Tanytarsus inaequalis* Goetghebuer, 1921 New to County Cork**

CORK, HA 21: Lough Avaul, Glengarrif (V910553) and Glenbeg Lough, Ardgroom (V777552), 19 October 1985, leg. C. Duigan.

There are only 11 previous records of *Tanytarsus inaequalis* in Ireland, two of which are in a section of HA 21 lying in County Kerry. The record from HA 21 in the 1985 sample from Lough Avaul constitutes the first record of the species from County Cork.

***Tanytarsus lestagei* Goetghebuer, 1922 New to HA 21**

CORK, HA 21: Lough Derryvegall, Ardgroom (V650555), 19 October 1985, leg. C. Duigan.

Tanytarsus lestagei is known from over 40 locations in Ireland and there has been only one record from 1968 in HA 19, County Cork at Lough Gouganebarra (Murray, 1972). The pupal exuviae collected in 1985 at Lough Derryvegall, provide the second record from County Cork and the only record to date from HA 21.

***Tanytarsus mendax* Kieffer, 1925 New to HA 21**

CORK, HA 21: Lough Drumbrow, Bantry (W034507), 20 October 1985, leg. C. Duigan.

There are records of *Tanytarsus mendax* from 20 locations including a recent record from HA 20 in County Cork at Fota Island (Murray, 2016b). The record from collections in 1985 is the earliest record of the species from County Cork and the only record to date from HA 21.

***Tanytarsus telmaticus* Lindeberg, 1959 New to County Cork and HA 21**

CORK, HA 21: Glenbeg Lough, Ardgroom (V777552), 19 October 1985, leg. C. Duigan.

There are records of *Tanytarsus telmaticus* from 27 locations in Ireland but this is the first record of the species from south-west Ireland in County Cork and HA 21. The majority of existing records are from small oligotrophic mountain lakes and pools.

Summary

A total of 117 records are given for 73 species documented in the data presented here. Twenty-four species records are noted as first county records: ten for County Dublin, four for County Cork, two each for Counties Meath, Mayo and Roscommon and one each for Counties Carlow, Clare, Monaghan and Tipperary. Twenty six species are documented as first Hydrometric Area records: nine in HA 9, seven in HA 21, two each in HA 8 and HA 30 and one for each of HAs 12, 25, 28, 29, 33 and 34. The chance inclusion of chironomid pupal exuviae in the littoral samples from collections made in the 1980s for studies on the Irish Cladocera yielded a total of 54 records for 45 species, six of which are new county records and seven are first hydrometric area records. The value of retaining and examining such old samples is evident.

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CORRECTIONS OF GRID REFERENCE FOR THREE SITES IN DISTRIBUTION RECORDS OF IRISH CHIRONOMIDAE (DIPTERA), PARTS 1-3

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Abstract

Grid references are corrected for three locations, two in County Cork and one on Rathlin Island, County Antrim that were given in "Distribution Records of Irish Chironomidae (Diptera)" published in Volumes 37, 38 and 39 of the *Bulletin of the Irish Biogeographical Society*. A list of the species of Chironomidae on record from each location is provided.
Keywords: distribution records, corrections, grid references, Chironomidae, Ireland.

Introduction

It has been brought to our attention that the six-figure grid references to three locations for the species distribution records of Chironomidae in Ireland, published in Murray *et al.* (2013, 2014, 2015) are inaccurate. The correct grid references, and an inventory of the species at each location, are provided here for the three locations. Two sites are in County Cork (Lough Gouganebarra and Lough Curraghlicky) and one site County Antrim (on Rathlin Island at the exit stream from Lough Craigmacagan).

Lough Gouganebarra

Lough Gouganebarra lies in Hydrometric Area 19 of County Cork. The six-figure grid reference number was erroneously cited as "W009060" in Murray *et al.* (2013, 2014 and 2015) whereas the correct reference is **W090660.** The following species are on record for this site.
Tanypodinae (in Murray *et al*., 2013): *Ablabesmyia* (*Ablabesmyia*) *monilis* (Linnaeus, 1758), *Arctopelopia barbitarsis* (Zetterstedt, 1850), *Arctopelopia griseipennis* (van der Wulp, 1859), *Macropelopia adaucta* Kieffer, 1916, *Procladius* (*Holotanypus*) *choreus* (Meigen, 1804).

Diamesinae (in Murray *et al.*, 2013): *Potthastia longimanus* Kieffer, 1922, *Protanypus morio* (Zetterstedt, 1838).
Prodiamesinae (in Murray *et al.*, 2013): *Prodiamesa olivacea* (Meigen, 1818).
Orthocladiinae (in Murray *et al.*, 2014): *Corynoneura celeripes* Winnertz, 1852, *Corynoneura scutellata* Winnertz, 1846, *Cricotopus* (*Isocladius*) *tricinctus* (Meigen, 1818), *Epoicocladius ephemerae* (Kieffer, 1924), *Heterotanytarsus apicalis* (Kieffer, 1921), *Heterotrissocladius marcidus* (Walker, 1856), *Metriocnemus* (*Metriocnemus*) *fuscipes* (Meigen, 1818), *Parakiefferiella bathophila* (Kieffer, 1912), *Parametriocnemus stylatus* (Spärck, 1923), *Psectrocladius* (*Allopsectrocladius*) *platypus* (Edwards, 1929), *Psectrocladius* (*Monopsectrocladius*) *calcaratus* (Edwards, 1929), *Psectrocladius* (*Psectrocladius*) *barbimanus* (Edwards, 1929), *Psectrocladius* (*Psectrocladius*) *fennicus* Storå, 1939, *Smittia aterrima* (Meigen, 1818), *Synorthocladius semivirens* (Kieffer, 1909).
Chironominae – Chironomini (in Murray *et al.*, 2015): *Chironomus* (*Chironomus*) *annularius* Auctt. (Meigen, 1818), *Microtendipes chloris* (Meigen, 1818), *Polypedilum* (*Pentapedilum*) *tritum* (Walker, 1856), *Polypedilum* (*Polypedilum*) *pedestre* (Meigen, 1830), *Stictochironomus pictulus* (Meigen, 1830), *Stictochironomus rosenschoeldi* (Zetterstedt, 1838).
Chironominae – Pseudochironomini (in Murray *et al.*, 2015): *Pseudochironomus prasinatus* (Stæger, 1839).
Chironominae – Tanytarsini (in Murray *et al.*, 2015): *Cladotanytarsus mancus* (Walker, 1856), *Paratanytarsus laccophilus* (Edwards, 1929), *Paratanytarsus penicillatus* (Goetghebuer, 1928).

Lough Curraghlicky

Lough Curraghalicky lies in Hydrometric Area 20 of County Cork. The six-figure grid reference number was erroneously cited as "W234046" in Murray *et al.* (2013, 2014 and 2015) whereas the correct reference is **W234466.** The following species are on record for this site.
Tanypodinae (in Murray *et al.*, 2013): *Ablabesmyia* (*Ablabesmyia*) *monilis* (Linnaeus, 1758), *Ablabesmyia* (*Ablabesmyia*) *phatta* (Egger, 1864), *Arctopelopia barbitarsis* (Zetterstedt, 1850), *Conchapelopia melanops* (Meigen, 1818), *Procladius* (*Holotanypus*) *choreus* (Meigen, 1804), *Procladius* (*Holotanypus*) sp. Pe3 (*sagittalis/signatus*), *Procladius* (*Psilotanypus*) *rufovittatus* (van der Wulp, 1874), *Zavrelimyia* (*Paramerina*) *cingulata* (Walker, 1856).
Diamesinae (in Murray *et al.*, 2013): *Potthastia gaedii* (Meigen, 1838).
Orthocladiinae (in Murray *et al.*, 2014): *Corynoneura edwardsi* Brundin, 1949, *Heterotanytarsus apicalis* (Kieffer, 1921), *Heterotrissocladius grimshawi* (Edwards, 1929), *Nanocladius* (*Nanocladius*) *dichromus* (Kieffer, 1906), *Orthocladius* (*Pogonocladius*) *consobrinus* (Holmgren, 1869), *Parakiefferiella bathophila* (Kieffer, 1912), *Parakiefferiella*

scandica Brundin, 1947, *Psectrocladius* (*Allopsectrocladius*) *platypus* (Edwards, 1929), *Psectrocladius* (*Psectrocladius*) *sordidellus* (Zetterstedt, 1838), *Rheocricotopus* (*Rheocricotopus*) *fuscipes* (Kieffer, 1909)

Chironominae – Chironomini (in Murray *et al.*, 2015): *Chironomus* (*Chironomus*) *plumosus* (Linnaeus, 1758), *Cladopelma viridulum* (Linnaeus, 1767), *Cryptochironomus obreptans* (Walker, 1856), *Endochironomus albipennis* (Meigen, 1830), *Glyptotendipes* (*Caulochironomus*) *scirpi* (Kieffer, 1915), *Glyptotendipes* (*Glyptotendipes*) *cauliginellus* (Kieffer, 1913), *Glyptotendipes* (*Glyptotendipes*) *pallens* (Meigen, 1804), *Glyptotendipes* (*Glyptotendipes*) *paripes* (Edwards, 1929), *Nubensia nubens* (Edwards, 1929) = *Pentapedilum nubens* (Edwards, 1929), *Parachironomus frequens* (Johannsen, 1905), *Parachironomus gracilor* (Kieffer, 1918), *Polypedilum* (*Polypedilum*) *nubeculosum* (Meigen, 1804).

Chironominae – Pseudochironomini (in Murray *et al.*, 2015): *Pseudochironomus prasinatus* (Stæger, 1839).

Chironominae – Tanytarsini (in Murray *et al.*, 2015): *Cladotanytarsus atridorsum* Kieffer, 1924, *Paratanytarsus laccophilus* (Edwards, 1929), *Paratanytarsus tenuis* (Meigen, 1830), *Stempellinella edwardsi* Spies and Sæther, 2004.

Lough Craigmacagan, Rathlin Island

Lough Craigmacagan is located on Rathlin Island, County Antrim**.** The six-figure grid reference number for the exit stream of the lake was erroneously cited as "D153596" in Murray *et al.* (2013, 2014, 2015) whereas the correct reference is **D153496.** The following species are on record for this site.

Tanypodinae (in Murray *et al*., 2013): *Ablabesmyia* (*Ablabesmyia*) *monilis* (Linnaeus, 1758), *Xenopelopia nigricans* (Goetghebuer, 1927).

Orthocladiinae (in Murray *et al*., 2014): *Psectrocladius* (*Allopsectrocladius*) *obvius* (Walker, 1856), *Psectrocladius* (*Psectrocladius*) *limbatellus* (Holmgren, 1869).

Chironominae (in Murray *et al*., 2015): *Chironomus* (*Chironomus*) *aprilinus* Meigen, 1818, *Chironomus* (*Chironomus*) *pallidivittatus* Edwards, 1929, *Polypedilum* (*Polypedilum*) *arundineti* (Goetghebuer, 1921).

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FIRST IRISH RECORDS OF THE CREAM-STREAKED LADYBIRD *HARMONIA QUADRIPUNCTATA* (PONTOPPIDAN, 1763) (COLEOPTERA: COCCINELLIDAE)

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Abstract

Three specimens of the cream-streaked ladybird *Harmonia quadripunctata* (Pontoppidan, 1763) were beaten from pine (*Pinus*) trees on the Dublin coast in September 2017. This species has expanded through Britain over the last eighty years and these specimens seem to be the first Irish records. The ladybird is the second species of *Harmonia* to arrive on these shores within the last decade and possible interactions with the invasive harlequin ladybird (*H. axyridis* (Pallas, 1773)) are noted.

Key words: Coleoptera, Coccinellidae, *Harmonia quadripunctata*, cream-streaked ladybird, Ireland, addition.

Introduction

A specimen of the ten-spot ladybird *Adalia decempunctata* (Linnaeus, 1758) was beaten from a sycamore *Acer pseudoplatanus* growing on the Mornington sand-dune system south of the Boyne Estuary, County Meath (O158756) on 24 August 2017. The individual was collected as part of a survey of spiders (Arachnida) (and other invertebrates) of the Boyne Estuary SAC (Mornington Dune and Saltmarsh) sponsored by Meath County Council through the Community Heritage Grant Scheme 2017. A superficial examination allowed me to wrongly identify the specimen as the cream-streaked ladybird *Harmonia quadripunctata* (Pontoppidan, 1763) which had not been previously found in Ireland (Ladybirds of Ireland, 2017). Understanding that *H. quadripunctata* prefers pine (*Pinus*) trees and curious whether it might be found elsewhere on the east coast I made three short collecting trips to Irishtown Park, Dublin, in September 2017 where a number of young pines dot the park and nature reserve. With little effort I was able to collect three specimens of *H. quadripunctata*.

The records

DUBLIN: Irishtown Park (O203332), Sandymount, Dublin City, one specimen 2 September 2017, beaten from young *Pinus*; Irishtown Park (O192333), two specimens 10 September 2017, also beaten from young *Pinus*. Grid references were derived from <http://irish.gridreferencefinder.com/>.

Collection methods

Collections were made from four young pines. A plastic ground-sheet was spread under the lower branches of the trees and these were beaten with a stout stick a number of times thereby knocking invertebrate specimens and vegetative debris onto the sheet. The resultant fallout was transferred into a plastic bowl and the invertebrates extracted immediately with a pooter. The beaten branches were only *circa* 30-150cm from ground level and were easily sampled. Five samples were taken from two trees on the 2 September 2017. Additional samples were made on the 10 September 2017 by knocking branches directly into a sweep-net and extracting invertebrates from the debris by the same method as above. The first specimen found was in fact knocked onto the ground-sheet with the very first stroke of the stick.

Ireland's ladybird fauna

The addition of the cream-streaked ladybird brings to twenty the number of 'typical' ladybird species found in Ireland. The most recent addition was the harlequin ladybird *Harmonia axyridis* (Pallas, 1773) which was first seen in Ireland in 2007 (Murchie *et al.*, 2008) with a breeding population identified from County Cork in 2010 (O'Sullivan, 2015) and from County Carlow in 2011 (Anderson and Power, 2013). It is now known from a number of other Irish counties and seems to be well established in Ireland. Whether it has had or will have any impact on native ladybird populations remains to be seen. I am aware of Irish records of two additional ladybird species which are yet to be published.

Identification and appearance

The specimens were identified using Roy *et al.* (2013). The cream-streaked ladybird has the appearance of a 'typical' ladybird, with a varying number of black spots on pinkish elytra and a distinctive pattern of black spots on the pronotum (Fig. 1). The popular name comes from the cream coloured areas seen on the margin and central dorsal area of each elytron. The number of spots can vary from two on the margin of the elytra, others being absent or indistinct, to sixteen very clear spots in a 1-3-3-1 pattern on each elytron. Variations include 20 spot and melanic forms. The pattern of eleven (usually) spots on the white pronotum is diagnostic: five relatively large black or very dark spots are found to the rear of the centre of the pronotum and two or three more dark spots, often smaller, are found to each side. The three Irishtown specimens had 16 clear spots, cream-streaking of varying extents but in one specimen the five central pronotal spots were partly fused and in another the central elytral spots were also slightly fused. The three specimens were 6mm in length which is within the normal range (5.5-7mm).

The initial misidentification of the specimen of the ten-spot ladybird was due primarily to the pronotal pattern which under a hand lens seemed to conform to that described above.

Microscopic examination however showed that what seemed to be black spots adjacent to the five central spots were in fact darker markings under the pronotum which could be seen through that structure. The specimen also had extensive cream-streaking and rather faint spots. A detailed microscopic examination using a critical key (Roy *et al.*, 2013) revealed the significant differences in ventral structures and colouration. It is worth observing that some of the commonest ladybird species found in Ireland are amongst the most variable in colour and pattern and with the advent of the highly variable harlequin ladybird great care needs to be taken in the identification of specimens.

Distribution and spread of the cream-streaked ladybird

The cream-streaked ladybird has been spreading over the last century and probably longer into western and northern Europe from a Mediterranean and central/southern European base (Brown *et al.*, 2008; Belyakova *et al.*, 2016). The species was first noted in Britain in 1937 from west Suffolk and subsequent evidence suggests that it took some fifty years to spread from there to Devon, a distance of some 200 miles (Brown *et al.*, 2008; Roy *et al.*, 2013). The species is considered to have reached Britain by natural means and therefore qualifies as a native species (Roy *et al.*, 2013). It seems to have been accidentally introduced to North America where it was first recorded in 1924 and it is now established in some north-eastern states of the U.S.A. including New York and Rhode Island (Hoebeke and Wheeler, 1996). *Harmonia quadripunctata* mostly eats aphids (Hemiptera) but also a range of other foodstuffs (Roy *et al.*, 2013). It is primarily associated with *Pinus* and other conifers but has been observed on other trees in agricultural contexts: almond and apple in Turkey (Aslan and Uygun, 2005; Karaca *et al.*, 2010), citrus groves in Morocco (Smaili *et al.*, 2010) and apple orchards in Hungary (Radwan and Lövei, 1982).

Interactions with the harlequin ladybird

The cream-streaked ladybird is the second species from the genus *Harmonia* Mulsant, 1846 to be recorded from Ireland. Both it and the harlequin ladybird seem to have arrived here within the last decade. The harlequin ladybird is felt to pose a potential threat to 'native' ladybird species and a high environmental risk where it is introduced (Lenteren *et al.*, 2008). It has a reputation for aggressive expansion with potentially negative economic effects (NBDC, 2011) so it is of interest to note that the more recently arrived *H. quadripunctata* may be better equipped to withstand predation by *H. axyridis* than many other of Ireland's ladybirds. A laboratory study of larval, pre-pupal and pupal interactions between *H. axyridis* and other ladybird species showed that *H. quadripunctata* was both better able to defend itself from and more likely to kill/eat *H. axyridis* at immature stages than all other species tested other than the

eyed-ladybird *Anatis ocellata* (Linnaeus, 1758) (Ware and Majerus, 2008). *H. quadripunctata* in this study was the only coccinellid that predated *H. axyridis* pre-pupae to an appreciable degree and *H. axyridis* did not predate *H. quadripunctata* pupae at all. The fourth instar larvae, pre-pupae and pupae of *H. quadripunctata*, like *H. axyridis*, are heavily armoured with spines and this may explain to some extent the lower frequency of attacks on it by the harlequin ladybird. On the other hand, the smaller size of *H. quadripunctata* fourth instar larvae might contribute to making them vulnerable to attack from the harlequin ladybird as well as the high level of aggression exhibited by the latter (Ware and Majerus, 2008). As *H. quadripunctata* spreads through Ireland it will be expected to encounter *H. axyridis* on pines but it may be less vulnerable to the harlequin than other ladybirds. It is however vulnerable. A field study from Belgium showed that *H. quadripunctata* was one of two co-dominant species on Austrian pine *Pinus nigra* Arnold and was negatively affected by *H. axyridis* which became predominant on the pine within only two years of becoming established in the country (Adriaens *et al.*, 2008).

H. quadripuncata unlike the harlequin ladybird has never been considered invasive. It has been shown that the species enters reproductive diapause in response to short-day conditions and that this hampers adaptation to a novel climate. It is suggested that this is one of the principal reasons why it is not aggressively invasive in addition to its relatively smaller size and consequent lower fecundity (Belyakova *et al.*, 2016). The photoperiodic response observed would suggest that its reproductive period in Ireland would extend roughly from mid-March to mid-September.

Conclusion

Given that three specimens of *Harmonia quadripunctata* were collected easily at Irishtown Park, the species would seem to be abundant in the area and almost certainly represents a breeding population. More sightings of the species may be expected from Ireland's east coast over the coming years. It is worth noting also that the detection of this species was essentially due to a serendipitous misidentification.

Acknowledgements

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FIGURE 1. A specimen of the cream-streaked ladybird *Harmonia quadripunctata* (Pontoppidan, 1763) collected from *Pinus* at Irishtown Park on 10 September 2017. Photograph © Myles Nolan.

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SOME RECENT RECORDS FOR UNCOMMON IRISH WOODLICE (CRUSTACEA: ISOPODA)

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Abstract

Some interesting finds of Irish woodlice are reported including new vice-county records.
Key words: Crustacea, Isopoda, woodlice, Ireland, distribution.

Introduction

Information contained in Gregory (2009) would suggest that woodlice have received relatively little attention by Irish naturalists over recent years, especially compared to the 1970's when a great deal of recording was carried out, culminating in the publication of Doogue and Harding (1982). Nevertheless a few interesting finds have been made in recent years, most notably the rediscovery of *Acaeroplastes melanurus* (Budde-Lund) (Wickenberg and Reynolds 2002; Anderson, 2007). Some other records of interest collected by the author are listed below, with new vice-county records being denoted by an asterisk *.

TRICHONISCIDAE

***Haplophthalmus danicus* Budde-Lund, 1880**

MID CORK: Douglas (W699687), 3 February 2006, in leaf litter in disturbed deciduous woodland. **WATERFORD:** Rincrew (X094809), 16 February 2006, singleton in leaf litter in beech *Fagus* woodland. **TYRONE:** Clogher (H544521), 10 February 2006, disturbed planted woodland.

Possibly on the increase and likely to be under recorded especially in the south and the east. Inconspicuous and usually associated with disturbed sites.

***Miktoniscus patiencei* Vandel, 1946**

EAST CORK: *Ballyannan (W874716), 30 August 2010, frequent under driftwood, on a small patch of estuarine grassland. **WATERFORD:** Newport (X0984), 30 September 2004, under logs, embedded at high-water-mark in a saltmarsh.

Distinctive even after many years storage in alcohol, the dark gut contents showing through the cuticle and tiny black ocellus remaining highly characteristic.

***Orithoniscus flavus* (Budde-Lund, 1906)**

MEATH: McLoughlin Bridge (N862415), 22 August 2008, among vegetation on the banks of the Royal Canal. **DUBLIN:** Mulhuddard Bridge (O067403), 26 March 2012, frequent on the disturbed bank of the River Liffey. **WESTMEATH:** *Farranistick (N423562), 17 April 2009, in a small marsh with bog myrtle *Myrica gale* L., near the Royal Canal. **WICKLOW:** Ballyraine (T2274), 9 November 2009, scarce in moss on a tree stump in oak *Quercus* woodland.

***Trichoniscoides saeroeensis* Lohmander, 1923**

CLARE: Drumquin Point (R330684), 13 February 2008, under stones and pieces of wood along the strandline in a saltmarsh. **SOUTH-EAST GALWAY:** *Oranmore (M377246), 1 February 2012, under a stone in coastal grassland. **WICKLOW:** *Wicklow Bay (O312953), 1 March 2012, singleton under a stone on a low gravelly coastal bank.

***Trichoniscoides sarsi* Patience, 1908**

KILDARE: *Kilcock (N874402), 22 August 2008, a few specimens under pieces of wood on discarded marble chippings, at the base of a wall in a graveyard. Confirmed by reference to the second male pleopod.

Previous Irish records have come from Dublin City (Gregory, 2009), with older published records likely to refer to *Trichoniscoides saeroeensis*. An inconspicuous animal which could easily be overlooked, especially in urban areas along the east coast.

HALOPHILOSCIIDAE

***Halophiloscia couchi* (Kinahan, 1858)**

WEST CORK: *Poulgorm Bridge (W213352), 27 February 2008, a few individuals present under stones on a narrow band of rotting seaweed. Noticeably fast running in the field, individuals are difficult to spot among abundant littoral amphipods.

PLATYARTHRIDAE

***Platyarthrus hoffmannseggi* Brandt, 1833**

Since the publication of Cawley (2001), I have noted the ant species with which *Platyarthrus hoffmannseggi* was associated at an additional 16 sites in vice-counties Mid Cork (3 sites), East Cork (3), South Tipperary (3 sites), Kilkenny (2), Carlow (2), Wexford (2) and Dublin (1). The woodlouse was present in the nests of *Lasius niger* (L.) (10 sites), *L. flavus* (Fabricius) (5 sites) and *Myrmica ruginodis* Nylander (2) and *M. scabrinodis* Nylander (2). Again at some sites, *P. hoffmannseggi* was present in the nests of both *Lasius* sp. Combining all my records the associated ant species were *L. niger* (37 sites), *L. flavus* (Fabricius) (28 sites), *M. ruginodis* Nylander (8) and *M. scabrinodis* Nylander (5).

ONISCIDAE

***Oniscus asellus* Linnaeus, 1758**

This common woodlouse comprises two subspecies, *Oniscus asellus asellus* Linnaeus and *Oniscus asellus occidentalis* Bilton, 1994, which are separated based on the shape of the male first pleopods. Both subspecies have been recorded from Ireland by Bilton (1994). My own specimens (from vice counties H05, H17, H20, H21, H26, H27, H28, H29 and H36) are all referable to *asellus asellus*. This would appear to be the common subspecies in Ireland, with, at least on present evidence, *asellus occidentalis* confined to the south coast.

ARMADILLIDIIDAE

***Armadillidium depressum* Brandt, 1833**

WEXFORD: Wexford (T055212), 16 October 2009, A few specimens present, with *Porcellio spinicornis* Say, under stones at a derelict wall on waste ground.

Added to the Irish list by Cawley (1997), and likely to be consolidating its range in the south-east.

***Armadillidium pulchellum* (Zencker, 1798)**

SLIGO: Colgagh (G745365), 30 April 2013, frequent in moss on an old limestone wall. Carns (G707337), 27 May 2015, frequent in moss on a small area of exposed limestone in calcareous grassland. Carrigans Upper (G669177), 29 August 2015, in moss on an old stone wall. Treanmore (G722125), 31 May 2016, frequent in moss on a drystone wall. **CAVAN:** *Corratirrim (H079356), 14 May 2008, in moss under hazel *Corylus* on a limestone cliff.

***Armadillidium vulgare* (Latreille, 1804)**

EAST DONEGAL: *Bundoran (G820594), 24 April 2009, frequent on a disturbed sandy area adjacent to a carpark. **SLIGO:** Enniscrone (G281297), 22 April 2015, scattered individuals present on an area of disturbed sand dunes.

CYLISTICIDAE

***Cylisticus convexus* (De Geer, 1778)**

MID CORK: Ballyphehane (W678697), 13 September 2006, under a stone on waste ground. Wilton, Cork City (W649697), 25 May 2010, singleton among rubbish on waste ground. **WICKLOW:** Tinahask, Arklow (T252722), 9 November 2009, frequent under rubble on a disturbed sandy coastal bank.

PORCELLIONIDAE

***Porcellio dilatatus* Brandt, 1833**

SOUTH KERRY: Milltown (Q433012), 24 September 2008. **LIMERICK:** Carrigparsons

(R637521), 8 March 2010. In both cases sieved from debris collected in old cow sheds.

***Porcellio spinicornis* Say, 1818**

DUBLIN: Harolds Cross (O145348), 17 August 2008, shop wall. **MEATH:** Hamwood (N987409), 20 October 2008, cottage wall. **EAST MAYO:** *Charlestown (G478018), 28 May 2012, singleton on a shop wall. Ballaghdareen (M6194), 5 March 2013, on a wall at a disused railway station. **EAST DONEGAL:** *Bundoran (G820587), 2 May 2013, frequent under dry rubble at the ruins of a building. **SOUTH TIPPERARY:** Caher (S0524), 31 August 2010, house wall.

A synanthropic species, usually associated with walls. Needs to be searched for, but is expected to occur in towns and villages everywhere in Ireland. *Porcellio spinicornis* is also associated with ruins.

***Porcellionides cingendus* (Kinahan, 1857)**

SLIGO: *Ballysadare (G672294), 26 May 2011, under slate tiles at a derelect railway station. Cliffony (G709538), 25 February 2015, in moss on a stone wall. Clearly an introduction at Ballysadare but the second occurrence seems more natural. It would be easy to overlook small populations of this inconspicuous woodlouse among the abundance of *Philoscia muscorum* (Scopoli). **LOUTH:** *Carlingford (J2011), 4 February 2005, in moss on a coastal wall.

***Porcellionides pruinosus* (Brandt, 1833)**

SOUTH TIPPERARY: Ferryhouse (S237229), 7 June 2007, abundant in what is effectively a compost heap on a neglected patch of ground between the River Suir and St Joseph's Church. **DUBLIN:** Beechpark (O046379), 16 January 2013, abundant in a discarded hay roll at the edge of beech *Fagus* woodland. **SLIGO:** Culleenamore (G614341), 9 June 2015 scarce, in a large heap of grass cuttings.

Porcellionides pruinosus is under recorded around farms, in dung heaps etc., but is certainly rather less predictable to occur than *Porcellio dilatatus*.

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AN INDEXED BIBLIOGRAPHICAL CHECKLIST OF THE WOODLICE (CRUSTACEA: ISOPODA) OF IRELAND (1836-2017)

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Dedication

This publication is dedicated to the memory of Professor John Robert Kinahan (1828-1863). Kinahan was much the most significant 19th century worker on land isopods in these islands. He added numerous species to the Irish (and British) fauna, and described two new species *Porcellionides cingendus* (Kinahan, 1857) and *Halophiloscia couchi* (Kinahan, 1858).

Abstract

A bibliography relating to Ireland's woodlice is presented, which can be searched for species, vice-counties, habitats and some other topics.
Key words: Crustacea, Isopoda, woodlice, Ireland, bibliography, vice-counties, distribution, habitats.

Introduction

The following comprises an indexed bibliography relating to the occurrence of woodlice in Ireland. The bibliography can be searched for topics including species, vice-counties, habitats etc. In order to save space references are numbered, and these numbers used throughout the text. References which add a species to the Irish list are indicated using **bold** print. Misidentifications and other errors are placed in brackets (). Bibliographies relating to Irish land isopoda have previously been provided by Pack-Beresford and Foster (1911), Harding (1975) and Doogue and Harding (1982). I used the last of these as my main guide in assembling this bibliography, although a considerable number of mostly incidental references were omitted from that publication. Most of these concern anonymous notes published in the *Annual Reports and Proceedings of the Belfast Naturalists' Field Club*. The newsletters of the British Isopod Study Group, and subsequently the British Myriapod and Isopod Group contain numerous mostly incidental unpublished mentions of Irish woodlice, which with one exception are not included. The index to the bibliography is arranged in three parts *viz.* (1) species, (2) vice-counties and (3) other topics. Some references are not referable to a vice-county. Mention of 'the four common woodlice' is taken to refer to the four ubiquitous species *Trichoniscus pusillus* Brandt, 1833, *Philoscia muscorum* (Scopoli, 1763), *Oniscus asellus* Linnaeus, 1758 and *Porcellio scaber*

Latreille, 1804

In compiling this bibliography, I have tried to be as comprehensive as possible. Where a doubt exists as to whether a paper should be included, my approach has been to include it. Rather less is known about the Irish woodlice than the length of the bibliography might suggest. For example, many of the references listed under Taxonomy refer to incidental references to colour. Obituaries of the more significant workers on the Irish woodlice are listed in the references.

Walter Edward Collinge

A difficulty arises concerning the contributions of W. E. Collinge who published numerous notes on woodlice, some of which refer to Ireland. Stelfox (1942) was the first to question the accuracy of Collinge's identifications. Subsequent to Harding's (1977) re-examination of specimens at the Yorkshire Museum, it is clear that Collinge records are best treated as doubtful. Harding (1990) did not list Collinge's publications in his comprehensive bibliography of the woodlice of Great Britain. For completeness sake, I have decided to include Collinge's Irish publications in this article, however I follow Harding (1977) and regard these as being unreliable. Consequently Collinge's records are not included in the vice-county lists. In any event, Collinge papers contain little original Irish information.

Woodlice records from offshore islands

Woodlice have been recorded from 26 Irish offshore islands. These are the Great Blasket and Beginish (South Kerry), Fastnet Rock, Cape Clear, Sherkin and Dursey (West Cork), Spike (East Cork), Inishmore (vice-county Clare), The Saltees (Wexford), St Macdara's and Inishbofin (West Galway), Lambay and Ireland's Eye (Dublin). Inishturk, Caher, Bills Rock, Clare Island, Mweelaun, Dorinish and Stags of Broadhaven (West Mayo), Inishmurray (Sligo), Aranmore, Tory and Inishtrahull (West Donegal), Mew, (Down) and The Maidens (Antrim). These are listed separately below under each species account.

Irish vice-county records for woodlice.

Vice-county lists for Irish woodlice have been provided by Pack-Beresford and Foster (1911) and Doogue and Harding (1982). I include here an updated list based on published records, information provided to the Isopod recording scheme and unpublished material, with errors and doubtful records being excluded.

History of the study of woodlice in Ireland

Templeton (1836) was the first to publish information on Irish woodlice, reporting the

findings of his father John Templeton (1766-1825). Subsequently Thompson (1844) added the ubiquitous *Philoscia muscorum* (Scopoli) to the Irish list.

Professor J. R. Kinahan, based at Trinity College Dublin, was the most significant 19th century worker on land isopods in these islands. He added six species to the Irish list, which included describing *Porcellionides cingendus* (Kinahan) as a new species. Scharff (1894) illustrated all the British Isles species, and he was responsible for adding three species to the Irish list. This publication ushered in a period of active recording, with species being added to the Irish list by Kane (1900), Scharff (1910), Foster (1908a, 1908b) and Pack-Beresford (1908a, 1908b). Arthur Stelfox and Robert Welsh were also active at this time. This period of active recording culminated in the publication of a review of the Irish woodlice by Pack-Beresford and Foster (1911). This publication, a model of completeness, included vice-county maps and a bibliography. As with many other invertebrate groups, little recording occurred between the 1920s and the 1960s. The discovery of *Armadillidium album* Dollfus in Ireland by Harding (1968) ushered in a second era of active recording, with species being added to the Irish fauna by Sheppard (1968), Doogue and Harding (1976, 1982), and Oliver and Sutton (1982). Much of this recording effort was co-ordinated by the British Isopod Study Group (subsequently the British Myriapod and Isopod Study Group), and culminated with the publication of a distribution atlas (Doogue and Harding, 1982). Recording effort continued at a reduced rate, with species being added by Irwin (1992) and Cawley (1997). The most important 21st century find was the rediscovery of *Acaeroplastes melanurus* (Budde-Lund) by Wickenberg and Reynolds (2002) and Anderson (2007). An updated distribution atlas for Britain and Ireland was produced by Gregory (2009).

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Index to The Bibliography 1: species

LIGIIDAE

***Ligia oceanica* (Linnaeus, 1767)**

Irish bibliography: 1, 7, 13, 16, 41, 64, 71, 72, 73, 74, 77, 79, 80, 84, 85, 99, 102, 108, 109, 111, 116, 120, 123, 125, 129, 130, 131, 132, 135, 139, 142, 144, 146, 149, 157, 158, 162, 163, 169, 172, 173, 175, 176, 177, 179, 180, 184, 185, 186, 187, 190, 191, 197, 202, 203, 204, 207, 208, 210, 211, 220, 224, 233, 234, 235, 236, **237**, 238, 239, 240, 244, 248.

Offshore island records: Fastnet Rock, Cape Clear, Inishmore, Inishbofin, Lambay, Mweelaun, Clare Island, Dorinish, Inishmurray, Tory, Inishtrahull, The Maidens.

Vice-county checklist: H01-H06, H08, H09, H11, H12, H15-H17, H20-H22, H27, H28, H29, H31, H34, H35, H37-H40.

TRICHONISCIDAE

***Androniscus dentiger* Verhoeff, 1908**

Irish bibliography: 4, 14, 19, 33, 34, 35, 36, 37, 39, 40, 42, 43, 45, 47, 51, 57, 67, 77, 79, 85, 89, 91, 103, 104, 105, 107, 108, 109, 110, 113, 114, 117, 123, 125, 130, 131, 134, 137, 139, 142, 144, 146, 149, 151, 152, 153, 154, 157, 162, 184, 187, 190, 191, 193, 201, 202, 203, 205, 207, **210**, 232, 233, 236, 240, 241, 242, 243, 245, 246.

Offshore island record: Clare Island.

Vice-county checklist: recorded from every Irish vice-county: H01-H40.

***Haplophthalmus danicus* Budde-Lund, 1880**

Irish bibliography: 57, 64, **67**, 77, 79, 82, 85, 89, 90, 92, 105, 106, 107, 108, 109, 125, 130, 131, 139, 142, 144, 146, 149, 150, 162, 184, 187, 190, 201, 202, 207, 233.

Vice-county checklist: H02, H04-H07, H12, H13, H19-H21, H28, H36, H38, H39.

***Haplophthalmus mengei* (Zaddach, 1844)**

Irish bibliography: 19, 30, 34, 37, 45, 47, 49, 51, 54, 64, 67, 77, 79, 85, 89, 90, 92, 100, 103, 105, 107, 108, 109, 116, 120, 123, 124, 125, 130, 131, 139, 142, 144, 146, 149, 162, **167**, 182, 183, 184, 187, 190, 198, 201, 202, 203, 207, 232, 233, 240.

Offshore island records: Inishmore, Clare Island and Tory.

Vice-county checklist: recorded from every Irish vice-county except H18 (Offaly) and H32 (Monaghan).

***Metatrichoniscoides* sp.**

Irish bibliography: 131, 162, **166**.

Vice-county checklist: H39.

***Miktoniscus patiencei* Vandel, 1946**

Irish bibliography: 79, 82, 108, 131, 149, 162, 187, **188**.

Offshore island records: Sherkin and Cape Clear.
Vice-county checklist: H03, H05, H06, H12.

***Orithoniscus flavus* (Budde-Lund, 1906)**

Irish bibliography: 69, 79, 82, 85, 88, 89, 90, 95, 96, 104, 105, 106, 107, 108, 109, 122, 130, 131, 139, 142, 144, 145, 146, 149, 162, **170**, 178, 180, 182, 187, 189, 190, 191, 193, 194, 198, 201, 202, 203, 207, 210, 213, 218, 222, 230, 231, 233, 234, 240.
Vice-county checklist: H01, H05-H14, H17-H23.

***Trichoniscoides albidus* (Budde-Lund, 1880)**

Irish bibliography: (31), (32), 79, (85), (104), **105**, 108, (109), (120), (121), (123), (124), (125), 130, 131, (139), (142), (144), (146), 149, 161, 162, 187, (191), (202), (203), (207), (232).
Vice-county checklist: H02, H08, H14, H21.

***Trichoniscoides saeroeensis* Lohmander, 1923**

Irish bibliography: 76, 77, 79, 82, 105, 106, 108, 130, 131, 139, 142, 144, 149, 151, 152, 153, 154, 161, 162, 187, 190, **223**, 233.
Offshore island records: Cape Clear, Inishmore, Clare Island and Tory.
Vice-county checklist: H01, H03-H06, H09, H12, H15, H20, H21, H27-H29, H31, H34, H35, H38.

***Trichoniscoides sarsi* Patience, 1908**

Irish bibliography: 79, 82, (94), (105), (106), **108**, 109, 131, (139), (142), 149, 161, 162, 184, 187.
Vice-county checklist: H19, H21.

***Trichoniscus pusillus* Brandt, 1833 agg.**

Irish bibliography: 15, 16, 18, 22, 28, 33, 34, 35, 36, 37, 38, 40, 41, 42, 52, 55, 56, 57, 59, 61, 64, 66, 67, 69, 74, 76, 77, 78, 79, 83, 84, 85, 90, 100, 103, 104, 108, 109, 111, 116, 117, 120, 121, 123, 124, 125, 126, 130, 131, 135, 139, 142, 144, 146, 149, 151, 152, 153, 154, 157, 162, **169**, 170, 172, 175, 180, 181, 184, 187, 190, 193, 201, 202, 207, 210, 213, 214, 220, 226, 227, 232, **233**, 234, 236, 240, 242.
Offshore island records: Great Blasket, Beginish, Cape Clear, Sherkin, Inishmore, Lambay, Ireland's Eye, Inishbofin, Inishturk, Caher, Clare Island, Dorinish, Tory.
Vice-county checklist: recorded from every Irish vice-county, H01-H40.

***Trichoniscus provisorius* Racovitza, 1908**

Irish bibliography: 108, 127, 128, 131, 144, 149, **209**, 233, 234.
Vice-county checklist: H04, H07, H09, H15, H16, H18-H23, H27, H28, H33, H35-H40.

***Trichoniscus pusillus* Brandt, 1833**

108, 127, 128, 131, 144, 233.
Offshore island records: Clare Island.

Vice-county checklist: H07, H09, H15, H16, H19-H21, H23, H27, H33-H40.

***Trichoniscus pygmaeus* Sars, 1898**

Irish bibliography: 9, 11, 12, 23, 24, 26, 27, 28, 34, 37, 38, 40, 42, 64, 67, 76, 77, 79, 85, 103, 104, 105, 107, 108, 109, **112**, 114, 116, 117, 120, 121, 123, 124, 125, 130, 131, 134, 135, 139, 142, 144, 146, 149, 157, 184, 187, 190, 198, 202, 203, 207, 232, 233.

Offshore island records: Ireland's Eye, Clare Island, and Tory.

Vice-county checklist: recorded from every Irish vice-county, H01-H40.

HALOPHILOSCIIDAE

***Halophiloscia couchi* (Kinahan, 1858)**

Irish bibliography: 64, 66, 79, 82, 85, 89, 105, 108, 109, 131, 139, 142, 144, 146, 149, 161, 162, 164, 178, 187, 190, 191, **196**, 197, 202, 207.

Vice-county checklist: H03, H06 and H21.

PHILOSCIIDAE

***Philoscia muscorum* (Scopoli, 1763)**

Irish bibliography: 1, 13, 16, 18, 22, 28, 33, 34, 35, 36, 37, 38, 40, 42, 52, 55, 56, 57, 58, 59, 61, 64, 66, 69, 74, 77, 78, 83, 84, 85, 98, 99, 103, 104, 108, 109, 111, 116, 120, 123, 124, 125, 126, 130, 131, 135, 139, 142, 144, 145, 146, 149, 155, 156, 157, 162, 163, 169, 170, 171, 172, 173, 174, 175, 180, 184, 187, 190, 191, 193, 201, 202, 207, 210, 213, 214, 220, 225, 226, 227, 232, 233, 234, 236, **238**, 239, 240.

Offshore island records: Great Blasket, Beginish, Cape Clear, Sherkin, Dursey, Inishmore, The Saltees, St Macdara's, Lambay, Ireland's Eye, Inishbofin, Inishturk, Caher, Clare Island, Inishmurray, Aranmore and Tory.

Vice-county checklist: recorded from every Irish vice-county, H01-H40.

PLATYARTHRIDAE

***Platyarthrus hoffmannseggii* Brandt, 1833**

Irish bibliography: **2**, 3, 79, 82, 85, 89, 90, 97, 105, 106, 107, 108, 109, 111, 130, 131, 133, 134, 139, 142, 144, 145, 146, 149, 162, 171, 187, 190, 192, 201, 202, 203, 207, 210, 213, 217, 222, 228, 231, 232, 233, 236, 240.

Offshore island record: Sherkin.

Vice-county checklist: H01, H03-H14, H19, H21.

ONISCIDAE

***Oniscus asellus* Linnaeus, 1758**

Irish bibliography: 1, 13, 14, 15, 16, 18, 22, 28, 33, 34, 35, 36, 37, 38, 40, 41, 42, 52, 55, 56, 57, 59, 61, 64, 65, 66, 67, 69, 73, 74, 76, 77, 78, 83, 84, 85, 98, 99, 103, 104, 108, 109, 111, 116, 117, 120, 121, 123, 124, 125, 126, 130, 131, 135, 139, 141, 142, 144, 145, 146, 149, 151, 152, 153, 154, 157, 159, 162, 163, 169, 171, 172, 173, 174, 175, 180, 184, 187, 190, 193, 201, 202, 204, 207, 209, 210, 213, 214, 220, 226, 227, 232, 233, 234, 236, **237**, 238, 239, 240.

Offshore island records: Great Blasket, Beginish, Cape Clear, Sherkin, Inishmore, The Saltees, St Macdara's, Lambay, Ireland's Eye, Inishbofin, Inishturk, Caher, Clare Island, Dorinish, Inishmurray, Tory, Inishtrahull and The Maidens.

Vice-county checklist: recorded from every Irish vice-county, H01-H40.

***Oniscus asellus* ssp. *asellus* Linnaeus, 1758**

Irish bibliography: **70**, 82.

Offshore island record: Clare Island.

Vice-county checklist: H01, H05, H17, H20, H21, H26-H29, H36.

***Oniscus asellus* ssp. *occidentalis* Bilton, 1994**

Irish bibliography: **70**, 82, 131.

Vice-county checklist: H02, H03, H06.

ARMADILLIDIIDAE

***Armadillidium album* Dollfus, 1887**

Irish bibliography: 60, 61, 62, 79, 105, 107, 108, 131, **134**, 136, 137, 138, 139, 142, 144, 149, 162, 187, 225, 233.

Vice-county checklist: H12, H20, H21, H38.

***Armadillidium depressum* Brandt, 1833**

Irish bibliography: **78**, 79, 82, 131, 180, 189, 190.

Vice-county checklist: H06, H11, H12.

***Armadillidium nasatum* Budde-Lund, 1885**

Irish bibliography: 10, 14, 33, 36, 50, 67, 68, 85, 105, 107, 108, 109, **113**, 114, 115, 117, 125, 131, 139, 142, 144, 146, 149, 162, 184, 187, 202, 203, 207, 233.

Vice-county checklist: H07, H21, H32, H36, H38, H39.

***Armadillidium pulchellum* (Zencker, 1798)**

Irish bibliography: 10, 61, 77, 79, 82, 85, 100, 101, 104, 105, 107, 108, 109, 125, 131, 139, 142, 144, 146, 149, 161, 162, 168, 182, 183, 187, 194, 202, 207, **219**, 233, 234, 240.

Vice-county checklist: H09, H10, H12-H15, H17, H18, H20, H21, H23, H25, H28, H30, H33, H38.

***Armadillidium vulgare* (Latreille, 1804)**

Irish bibliography: 1, 16, 17, 20, 23, 27, 35, 38, 41, 42, 44, 53, 61, 64, 66, 69, 74, 77, 78, 79, 82, 84, 85, 103, 104, 105, 107, 108, 109, 111, 123, 125, 126, 130, 131, 134, 135, 137, 139, 141, 142, 144, 146, 147, 149, 155, 156, 157, 161, 162, 163, 169, 171, 172, 175, 179, 180, 182, 184, 187, 190, 191, 193, 201, 202, 203, 207, 210, 213, 214, 225, 232, 233, 234, 236, **237**, 238, 239, 240, 248.

Offshore island records: Cape Clear, Sherkin, The Saltees, Lambay and Ireland's Eye.

Vice-county checklist: H01-H15, H18-H23, H25, H26, H28, H31, H32, H34, H37-H40.

***Eluma caelatum* (Miers, 1877)**

Irish bibliography: 25, 29, 64, 66, 85, 87, 89, 90, 91, 105, 107, 108, 109, 131, 136, 137, 139, 142, 143, 144, 146, 147, 149, 155, 156, 157, 161, 162, 164, 184, 187, **197**, 202, 207, 225, 233.

Vice-county checklist: H19-H21.

CYLISTICIDAE

***Cylisticus convexus* (De Geer, 1778)**

Irish bibliography: 19, 33, 35, 36, 66, 77, 78, 79, 82, 85, 91, 105, 106, 107, 108, 109, 114, 120, 123, 124, 125, 130, 131, 139, 142, 144, 146, 149, 161, 162, 184, 187, 190, 195, 201, 202, 203, 207, **210**, 213, 215, 233, 236, 240.

Offshore island records: Clare Island and Tory.

Vice-county checklist: H01, H02, H04-H06, H10-H13, H18-H21, H25, H27-H30, H33-H36, H38-H40.

PORCELLIONIDAE

***Porcellio dilatatus* Brandt, 1833**

Irish bibliography: 14, 34, 37, 39, 43, 67, 69, 75, 77, 79, 81, 82, 84, 85, 105, 106, 107, 108, 109, 113, 117, 120, 114, 123, 125, 130, 131, 139, 142, 144, 146, 147, 149, 162, **169**, 175, 184, 187, 190, 193, 202, 203, 207, 210, 216, 220, 232, 236, 240, 242.

Offshore island records: Cape Clear, Inishmore and Clare Island.

Vice-county checklist: H01-H06, H08, H09, H10-H14, H16-H18, H20-H22, H27, H28-H34, H36-H39.

***Porcellio laevis* Latreille, 1804**

Irish bibliography: 21, 22, 63, 69, 84, 85, 105, 106, 107, 108, 109, 114, 123, 125, 131, 139, 142, 144, 146, 148, 149, 162, 169, 172, 175, 184, 187, 190, 202, 207, 210, 216, 232, 233, 236, **237**, 238, 239, 240.

Vice-county checklist: H02, H06, H11, H12, H16, H20, H21, H31, H37, H39.

***Porcellio scaber* Latreille, 1804**

Irish bibliography: 1, 13, 14, 15, 16, 18, 22, 28, 33, 34, 35, 36, 37, 38, 40, 41, 42, 52, 55, 56, 57, 58, 59, 64, 66, 67, 69, 73, 74, 76, 77, 78, 79, 80, 83, 84, 85, 93, 98, 99, 103, 104, 108, 109, 111, 116, 117, 120, 121, 123, 124, 125, 130, 131, 135, 137, 139, 142, 144, 145, 146, 149, 155, 157, 158, 162, 169, 171, 172, 173, 174, 175, 177, 179, 180, 184, 187, 190, 191, 193, 197, 201, 202, 204, 206, 207, 210, 213, 214, 219, 220, 226, 227, 229, 232, 233, 236, **237**, 238, 239, 240, 247.

Offshore island records: Great Blasket, Beginish, Cape Clear, Sherkin, Inishmore, Lambay, Ireland's Eye, Inishbofin, Inishturk, Caher, Clare Island, Mweelaun, Bills Rock, Dorinish, Inishmurray, Aranmore, Tory, Inishtrahull and The Maidens.

Vice-county checklist: recorded from every Irish vice-county, H01-H40.

***Porcellio spinicornis* Say, 1818**

Irish bibliography: 1, 16, 23, 27, 33, 34, 37, 39, 40, 43, 44, 46, 48, 51, 52, 74, 77, 79, 82, 84, 85, 105, 106, 107, 108, 109, 120, 121, 123, 124, 125, 130, 131, 139, 142, 144, 146, 149, 161, 162, **169**, 172, 175, 184, 187, 190, 191, 193, 201, 202, 203, 207, 210, 212, 232, 234, 236, 240.

Offshore island records: Spike, Clare Island, Lambay and Tory.

Vice-county checklist: recorded from every Irish vice-county except H24 (Longford) and H25 (Roscommon).

***Acaeroplastes melanurus* (Budde-Lund, 1885)**

Irish bibliography: 25, 29, 64, 85, 89, 90, 91, 105, 107, 108, 109, 131, 139, 142, 144, 146, 149, 164, 178, 187, 202, 207, **221**, 233, 247.

Vice-county checklist: H21.

***Porcellionides cingendus* (Kinahan, 1857)**

Irish bibliography: 58, 64, 69, 79, 82, 85, 104, 105, 106, 107, 108, 109, 111, 120, 130, 131, 134, 135, 139, 142, 144, 145, 146, 149, 157, 160, 161, 162, **169**, 175, 178, 184, 187, 190, 202, 207, 210, 217, 232, 233, 234, 236, 240.

Offshore island records: Cape Clear, Sherkin, Inishmore and Caher.

Vice-county checklist: H01-H12, H14, H15-H21, H26-H28, H31, H38, H39.

***Porcellionides pruinosus* (Brandt, 1833)**

Irish bibliography: 5, 33, 34, 36, 37, 39, 40, 43, 44, 67, 69, 77, 79, 82, 84, 85, 105, 106, 107, 108, 109, 113, 114, 117, 125, 131, 139, 142, 144, 146, 149, 162, **169**, 175, 184, 187, 190, 193, 201, 202, 203, 207, 210, 214, 234, 236, 240, 242.

Vice-county checklist: H02, H04-H07, H12, H13, H16, H17, H19-H22, H28-H30, H32, H34, H36-H39.

Species confined to hothouses in Ireland

TRICHONISCIDAE

***Trichoniscus* sp.**
Irish bibliography: **67**.
Vice-county checklist: H21.
***Trichorhina tomentosa* (Budde-Lund, 1893)**
Irish bibliography: 108, **118**, 125, 131, 139, 144, 146, 187, 199, 203, 233.
Vice-county checklist: H21, H38.

STYLONISCIDAE

***Cordioniscus stebbingi* (Patience, 1907)**
Irish bibliography: 39, 43, **67,** 85, 108, 109, 117, 125, 131, 139, 144, 146, 202, 203, 207.
Vice-county checklist: H21, H32, H38, H39.

ARMADILLIDIIDAE

***Reductoniscus costulatus* Kesselyák, 1930**
Irish bibliography: **108**.
Vice-county checklist: H21.

PORCELLIONIDAE

***Agabiformius lentus* (Budde-Lund, 1885)**
Irish bibliography: **108**.
Vice-county checklist: H38.

TRACHELIPODIDAE

***Nagurus nanus* (Budde-Lund, 1908)**
Irish bibliography: 108, **118**, 119, 125, 131, 139, 146, 187, 199, 203, 233.
Vice-county checklist: H38.

Species recorded in error from Ireland

LIGIIDAE

***Ligidium hypnorum* (Cuvier, 1792)**
Irish bibliography: 89, 231.

ARMADILLIDIIDAE

***Armadillidium pictum* Brandt, 1833**
Irish bibliography: 10, 68, 113, 114, 115. Irish records for *Armadillidium pictum* Brandt refer to

Armadillidium nasatum Budde-Lund.

TRACHELIPODIDAE

***Trachelipus rathkii* (Brandt, 1933)**
Irish bibliography: 86, 108, 109, 139, 207.
***Trachelipus ratzeburgi* (Brandt, 1833)**
Irish bibliography: 89, 94, 108, 139, 145.

Index to The Bibliography 2: vice-counties

South Kerry
58, 72, 82, 97, 107, 108, 122, 130, 131, 133, 136, 141, 142, 144, 149, 161, 186, 198, 202, 205, 227, 233, 234, 240.
North Kerry
70, 79, 107, 108, 130, 131, 134, 136, 141, 142, 144, 145, 148, 149, 150, 161, (198), 202, 233.
West Cork
58, 71, 79, 81, 82, 102, 107, 108, 111, 129, 131, 132, 133, 141, 142, 144, 149, 158, 159, 160, 161, 185, 186, 188, 202, 210, 233, 240.
Mid Cork
65, 79, 82, 105, 106, 107, 108, 111, 130, 131, 133, 134, 141, 142, 144, 149, 161, 202, 203, 233.
East Cork
79, 82, 105, 106, 107, 108, 111, 130, 131, 133, 141, 142, 144, 149, 161, 202, 203, 233.
Waterford
63, 69, 70, 78, 79, 80, 81, 82, 89, 105, 107, 108, 109, 111, 122, 130, 131, 133, 141, 142, 144, 148, 149, 161, 170, 179, 180, 189, 190, 193, 198, 202, 203, 210, 218, 240.
South Tipperary
82, 105, 106, 107, 108, 127, 128, 131, 133, 134, 141, 142, 144, 149, 150, 161, 202, 212, 233, 240.
Limerick
79, 82, 89, 90, 107, 108, 131, 133, 141, 142, 144, 145, 149, 161, 187, 202, 243.
Clare
79, 82, 107, 108, 116, 125, 128, 127, 130, 131, 133, 134, 135, 136, 141, 142, 144, 149, 151, 152, 154, 161, 167, 173, 174, 182, 183, 186, 187, 202, 208, 209, 210, 223, 233, 234, 240.
North Tipperary
107, 108, 131, 133, 141, 142, 144, 149, 161, 201, 202, 203.
Kilkenny
69, 78, 79, 81, 82, 105, 107, 108, 109, 122, 131, 133, 141, 142, 144, 149, 161, 170, 189, 198,

201, 202, 203, 240.

Wexford

69, 79, 82, 106, 107, 108, (109), 122, 130, 131, 133, 134, 136, 137, 138, 141, 142, 144, 149, 161, 169, 170, 186, 188, 192, 198, 202, 203, 228, 240.

Carlow

74, 82, 89, 106, 107, 108, 109, 111, 122, 131, 133, 141, 142, 144, 149, 150, 161, 182, 193, 194, 195, 198, 201, 202, 203, 207, 213.

Laois

79, 81, 89, 104, 105, 107, 108, 109, 122, 131, 141, 142, 144, 149, 161, 170, 187, 198, 202, 212, 240.

South-east Galway

82, 107, 108, 126, 127, 128, 131, 141, 142, 144, 149, 161, 182, 198, 202, 203.

West Galway

79, 84, 107, 108, 120, 127, 128, 131, (135), 142, 144, 149, 161, 181, 186, 202, 203, 233, 235, 240.

North-east Galway

79, 82, 107, 108, 131, 142, 144, 149, 161, 198, 201, 202, 214, 240.

Offaly

79, 104, 107, 108, 131, 142, 144, 149, 161, 202.

Kildare

2, 82, 105, 106, 107, 108, 127, 128, 131, 133, 141, 142, 144, 149, 150, 161, 187, 202.

Wicklow

69, 82, 106, 107, 108, 127, 128, 131, 136, 137, 141, 142, 144, 149, 150, 161, 169, 170, 171, 187, 202, 203, 210, 229, 232, 240.

Dublin

4, 5, 10, 14, 25, 29, 64, 66, 67, 69, 74, 75, 79, 82, 86, 87, 90, 91, 93, 105, 106, 107, 108, 109, 110, 111, 113, 116, 117, 125, 131, 133, 136, 137, 138, 141, 142, 143, 144, 148, 149, 150, 155, 156, 157, 161, 162, 164, 169, 170, 172, 175, 184, 187,191, 193, 195, 196, 197, 201, 202, 205, 207, 210, 212, 216, 221, 225, 232, 233, 234, 236, 240, 242, 243, 247.

Meath

5, 42, 69, 82, 105, 107, 108, 131, 137, 142, 144, 149, 161, 169, 170, 202, 203, 240.

Westmeath

79, 82, 103, 107, 108, 127, 128, 131, 141, 142, 144, 149, 161, 202.

Longford

107, 108, 131, 141, 142, 149, 161, 202.

Roscommon
59, 103, 107, 108, 131, 137, 141, 142, 144, 149, 161, 202, 207.
East Mayo
79, 82, 90, 107, 108, 120, 131, 137, 141, 142, 144, 149, 202, 203.
West Mayo
79, 82, 95, 96, 107, 108, 120, 123, 131, 141, 142, 144, 145, 149, 161, 202, 203, 206, 211, 224, 240.
Sligo
76, 77, 81, 82, 98, 99, 100, 105, 107, 108, 123, 124, 125, 131, 137, 142, 144, 149, 150, 161, 182, 183, 187, 202, 204, 207, 219.
Leitrim
19, 76, 77, 82, 105, 108, 116, 124, 131, 141, 142, 144, 149, 202, 203, 240, 243.
Cavan
33, 40, 79, 82, 108, 125, 131, 142, 144, 149, 161, 202, 203, 207, 226.
Louth
16, 38, 41, 42, 63, 82, 91, 105, 108, 123, 131, 142, 144, 148, 149, 161, 201, 202, 203.
Monaghan
39, 43, 50, 108, 125, 126, 131, 142, 144, 149, 161, 202, 203.
Fermanagh
81, 101, 107, 108, 125, 127, 128, 131, 141, 142, 149, 152, 154, 161, 195, 202, 203, 215, 233, 240.
East Donegal
19, 79, 82, 108, 116, 125, 127, 131, 142, 144, 149, 161, 177, 191, 202, 203, 210.
West Donegal
79, 108, 116, 125, 127, 131, 142, 144, 149, 161, 202, 233.
Tyrone
33, 36, 52, 69, 82, 92, 108, 125, 127, 128, 131, 141, 142, 144, 149, 170, 202, 203.
Armagh
21, 22, 23, 27, 34, 37, 56, 66, 91, 108, 125, 126, 127, 128, 131, 142, 144, 149, 161, 201, 202, 203, 240.
Down
7, 9, 10, 11, 12, 14, 17, 20, 23, 26, 31, 32, 35, 44, 45, 47, 53, 54, 55, 60, 61, 62, 83, 94, 97, 105, 108, 109, 112, 113, 114, 117, 118, 123, 125, 126, 131, 141, 142, 144, 145, 149, 161, 172, 176, 187, 193, 195, 199, 201, 202, 203, 205, 207, 210, 233, 234, 239, 242, 244, 246, 248.
Antrim
13, 14, 15, 24, 28, 46, 48, 49, 51, 57, 63, 73, 75, 83, 88, 89, 90, 96, 97, 105, 107, 108, 109, 115,

117, 114, 121, 125, 126, 127, 128, 131, 141, 142, 144, 149, 161, 162, 166, 172, 191, 201, 202, 203, 207, 220, 230, (240), 241, 242, 243, 245.

Derry

18, 30, 61, 83, 107, 108, 121, 125, 131, 142, 144, 149, 161, 177, 202, 207.

Index to The Bibliography 3: additional topics

Behaviour

64, 69, 72, 76, 108, 123, 125, 149, 169, 170, 185, 190, 210, 215, 228, 240.

Buildings (including ruins and walls)

54, 57, 74, 75, 77, 78, 79, 82, 83, 104, 105, 106, 107, 108, 120, 121, 123, 125, 128, 131, 134, 135, 137, 142, 144, 149, 167, 169, 182, 190, 192, 202, 219, 220, 232, 233, 236, 237, 239, 243.

Caves

108, 142, 144, 151, 152, 153, 223.

Coastal cliffs

64, 79, 105, 106, 107, 108, 109, 125, 131, 135, 142, 144, 164, 202, 227.

Compost and dung heap

77, 82, 106, 107, 108.

Farmyards

77, 79, 81, 82, 83, 107, 108, 130, 169, 236.

Folklore

210.

Freshwater habitats

42, 66, 77, 79, 82, 95, 104, 103, 105, 106, 107, 108, 111, 122, 125, 126, 128, 131, 135, 142, 144, 149, 187, 189, 190, 193, 202, 203, 207, 213, 218, 230, 233, 234.

Gardens (including parks and graveyards)

4, 11, 21, 22, 34, 37, 42, 67, 77, 79, 82, 86, 103, 104, 106, 107, 108, 109, 112, 114, 120, 125, 130, 131, 142, 144, 149, 182, 184, 189, 190, 193, 202, 205, 207, 210, 214, 216, 232, 236, 242, 243, 245, 246.

Grassland

57, 64, 77, 79, 82, 100, 101, 103, 104, 105, 106, 107, 108, 128, 131, 137, 142, 149, 190, 225, 234.

Greenhouses

10, 14, 33, 35, 36, 39, 40, 43, 67, 105, 107, 108, 113, 115, 117, 118, 125, 144, 190, 193, 202, 203, 207, 232, 233, 242.

Human rubbish and refuse tips

63, 66, 67, 77, 79, 103, 104, 107, 123, 149, 202, 205, 207, 236, 242.

Keys to the species
109, 162, 187, 202, 210, 233.
Limestone pavement and eskers
107, 108, 128, 135, 142, 209.
Myrmecophilous association
19, 64, 79, 82, 108, 111, 133, 144, 192, 203, 210, 213, 222, 228.
Offshore islands
71, 73, 74, 79, 98, 99, 105, 108, 116, 120, 131, 141, 144, 149, 174, 185, 188, 191, 202, 203, 206, 210, 211, 224, 227, 235, 240, 244.
Other coastal habitats
1, 7, 61, 64, 66, 70, 73, 74, 77, 76, 79, 80, 82, 88, 96, 102,105, 106, 107, 108, 109, 111, 120, 123, 125, 129, 130, 142, 143, 144, 149, 157, 158, 159, 160, 162, 164, 166, 169, 173, 176, 177, 179, 186, 188, 190, 195, 196, 197, 202, 203, 204, 207, 208 210, 220, 221, 224, 232, 233, 234, 236, 237, 239, 246, 247, 248.
Parasites
229.
Peat bogs
76, 77, 104, 108, 135, 149.
Predator-prey relationships
65, 77, 135.
Quarries and sandpits
77, 92, 103, 104, 106, 107, 108, 134, 149, 202, 210, 234, 236.
Railways
34, 37, 77, 78, 79, 82, 105, 107, 108, 125, 143, 149, 180, 202, 203.
Salt marsh
82, 108, 149, 155, 156.
Sand dunes
60, 61, 62, 79, 82, 105, 107, 108, 131, 134, 135, 137, 138, 144, 169, 190, 225.
Taxonomy
4, 10, 13, 64, 67, 68, 69, 70, 78, 86, 87, 88, 89, 90, 91, 93, 94, 95, 108, 109, 111, 113, 116, 119, 120, 123, 125, 128, 130, 131, 144, 149, 169, 170, 188, 190, 197, 202, 205, 210, 215, 219, 221, 223, 232, 233, 236, 240, 242, 243, 246, 247.
Uplands
19, 76, 77, 100, 120, 121, 124, 125, 144, 170, 202, 207, 236.
Waste ground
77, 78, 79, 82, 83, 105, 107, 108, 131, 149, 180, 189.

Woodlands

42, 57, 58, 59, 70, 77, 79, 82, 83, 104, 105, 106, 107, 108, 122, 123, 124, 128, 131, 142, 144, 149, 194, 210, 214, 234, 240.

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ADDITIONS, DELETIONS AND CORRECTIONS TO THE STAPHYLINIDAE IN THE *IRISH COLEOPTERA ANNOTATED LIST*, WITH A REVISED CHECK-LIST OF IRISH SPECIES

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Abstract

Since the 1997 *Irish Coleoptera – a revised and annotated list*, 59 species of Staphylinidae have been added to the Irish list, 11 species confirmed, a number have been deleted or require to be deleted, and the status of some species and names require correction. Notes are provided on the deletion, correction or status of 63 species, and a revised check-list of 710 species is provided with a generic index. Species listed, or not listed, as Irish in the *Catalogue of Palaearctic Coleoptera* (2nd edition), in comparison with this list, are discussed. The Irish status of *Gabrius sexualis* Smetana, 1954 is questioned, although it is retained on the list awaiting further investgation.

Key words: Staphylinidae, check-list, Irish Coleoptera, *Gabrius sexualis.*

Introduction

The Staphylinidae (rove-beetles) comprise the largest family of beetles in Ireland (with 621 species originally recorded by Anderson, Nash and O'Connor (1997)) and in the world (with 55,440 species cited by Grebennikov and Newton (2009)). Since the publication in 1997 of *Irish Coleoptera - a revised and annotated list* by Anderson, Nash and O'Connor, there have been a large number of additions (59 species), confirmation of the presence of several species based on doubtful old records, a number of deletions and corrections, and significant nomenclatural and taxonomic changes to the list of Irish Staphylinidae. It is increasingly difficult for coleopterists to keep track of the many scattered notes and papers adding, confirming and deleting species, so an up-dated list is provided here, following the lead of Bond and O'Connor (2012) for the Irish Lepidoptera.

As it is an unnecessary burden on any reader, unless a specialist, to be aware of the latest taxonomic sequence of staphylinid genera, we have taken the approach of listing genera alphabetically under each subfamily (or tribe in the case of the hyperdiverse Aleocharinae). Given that the main use of this list is likely to be for checking whether a species has been

recorded from Ireland or not, we presume that such alphabetical listing will allow easier location of species. In addition, an index to genera is provided in Appendix 1.

The taxonomic sequence generally follows Lott (2008a) and Duff (2012) (despite our reservations regarding the splitting of *Atheta* sensu Anderson, Nash and O'Connor (1997) into 24 genera!) as most users will be likely to follow the British nomenclature. However, in addition, all relevant taxonomic acts (Assing, 2015; Vogel, 2015) described in the *Catalogue of Palaearctic Coleoptera* (Löbl and Löbl, 2015) (hereafter abbreviated as the '*Palaearctic Catalogue*'), as well as subgeneric and generic resassignments of species in that work, have generally been followed. Also, with one exception, all dates of authors follow the *Palaearctic Catalogue* (Löbl and Löbl, 2015) for the pragmatic reason that the references to these are provided in the *Catalogue*. Our reservations concerning the raising of subgenera of *Atheta* to generic status are compounded by the potential confusion created when species are transfered from one subgenus to another, which then require them to be transferred from one genus to another to follow the nomenclature of Lott (2008a). Thus, for instance, *Alaobia subglabra* is transferred to *Oreostiba subglabra*, and *Atheta nigritula* to *Tetropla nigritula*. To avoid confusion, the names in Lott (2008a) are included in the list in square brackets, redirecting the reader to the new generic assignment of that species, derived from the subgeneric assignment in the *Palaearctic Catalogue*. This is not very satisfactory, but the purpose of this list, as mentioned above, is biogeographic not taxonomic.

A major change since the 1997 list has been the inclusion of what were then separate families, the Pselaphidae, Scaphidiidae and Scydmaenidae, as subfamilies of the Staphylinidae (following Newton and Thayer (1995) and Grebennikov and Newton (2009)). The list now stands at 710 species, but the list is still work in progress, as many existing specimens still require validation by specimen dissection.

Morris (2012) discussed issues arising with more than one name for regions or places. Here we cite both names, in an alternating sequence, for regions or places with more than one frequently-used name. The National Museum of Ireland is abbreviated to NMI in the text below.

The senior author is responsible for any errors or omissions to the list, and would be grateful to be notified of these.

Additions to the Irish list of Staphylinidae

In total, 59 staphylinid species have been added to the Irish list since 1997, an average of nearly three species per year. These additions are marked '+' in the revised check-list below, including the published source. Confirmations of species whose previous status were in some doubt are also marked 'c' in the revised check-list.

Irish species listed in the Palaearctic Catalogue

The *Catalogue of Palaearctic Coleoptera* (2nd edition, Schülke and Smetana, 2015), a remakable and authoritative achievement, lists every country from which each species is recorded, with 'IR' as the abbreviation for Ireland. There are a number of discrepancies, however, between the *Palaearctic Catalogue* and this list, as was similarily noted by Morris (2014) for the Curculionoidea recorded from Ireland. Species listed here which are not listed as 'IR' in the *Palaearctic Catalogue* are annotated here as 'not listed as Irish in *Pal. Cat.*'; these amount to 26 species. Species listed as 'IR' in the *Palaearctic Catalogue* but for which we have been unable to trace a reliable Irish record are mentioned under 'Notes on species' below; these amount to 11 species.

Notes on species: deletions, corrections and status

***Acrolocha minuta* (Olivier, 1795) (Omaliinae)**

The inclusion of this species as Irish in the *Palaearctic Catalogue* (Schülke and Smetana, 2015) appears to be due to a confusion of the synonym *striata*. Johnson and Halbert (1902) listed two Irish records for *Omalium striatum* Gravenhorst, repeated under *Acrolocha striata* (Gravenhorst) in Joy (1932), which is a synonym for *A. sulcula* (Stephens) (Pope, 1977; Lott, 2008a). However, *A. striata* (Gravenhorst) is also listed as a synonym of *A. minuta* (Olivier) in the *Palaearctic Catalogue* (Schülke and Smetana, 2015), as it was also used by Tottenham (1954) and by other contemporary British authors (Pope, 1977; Lott, 2008a). The Irish records refer to *sulcatula* (Hammond, 1980).

***Alaobia* (= *Atheta*) *pallidicornis* (Thomson, 1856) (Aleocharinae)**

The Irish record was cited incorrectly in Anderson, Nash and O'Connor (1997, Note 123) as being from O'Mahony (1927a); it should read 'Note 124', i.e. Nicholson (1920) (as referenced therein). The species has been found on a total of 26 occasions since 2000 and must be regarded as a common saproxyle, at least in northern counties.

***Alaobia* (= *Atheta*) *taxiceroides* Munster, 1932 (Aleocharinae)**

This species, added by Bryan and Anderson (2014b), is listed under *Atheta* (*Traumoecia*) by Schülke and Smetana (2015), and this is followed here. See also *Atheta* (*Atheta*) *olbrichi* below.

***Aleochara diversa* (Sahlberg, 1876) (Aleocharinae)**

There is some confusion in the literature about which name is valid for this species. *Aleochara kamila* Likovský, 1984 is used by Lott (2008a) and Silfverberg (2011), but it is

listed as a synonym of *diversa* (Sahlberg, 1876) by Tronquet (2014) and Schülke and Smetana (2015). The latter are followed here.

***Aleochara lygaea* Kraatz, 1862 (Aleocharinae)**

This species was reported by Helden, Anderson and Purvis (2008) from improved grassland in County Wexford. The specimen upon which the record was based was kindly sent by Dr Helden to one of the authors (JAG), who redetermined it as a female *Tinotus morion* (Gravenhorst). The specimen, with mounted spermatheca, has been lodged in the NMI collection.

***Aleochara moesta* Gravenhorst, 1802 (Aleocharinae)**

Deleted by Anderson and Bryan (2012a); the record cited in Johnson and Halbert (1902) is most probably referable to *Aleochara funebris* Wollaston.

***Aleochara stichai* Likovsky, 1965 (Aleocharinae)**

Welch (1997) has provided a useful key to the *funebris-sparsa* species group. Two additional species are now recorded as Irish of which *Aleochara diversa* (= *kamila*) (see above) is one. The other is *A. stichai* which was first recorded from a wood pigeon's nest at Upper Ballinderry, south Antrim (Bryan and Anderson, 2012). It is also known from Counties Armagh and Louth (RA).

***Aleochara verna* Say, 1836 (Aleocharinae)**

This species was reported by Helden, Anderson and Purvis (2008) from an improved agricultural grassland in County Wexford. The specimen upon which the record was based was kindly sent by Dr Helden to one of the authors (JAG), who redetermined it as a male *Aleochara bipustulata* (Linnaeus) using Strand and Vik (1968), Klimaszewski (1984), Lohse and Lucht (1989) and Welch (1997). The specimen, with mounted aedeagus, has been lodged in the NMI collection.

***Arrhenopeplus tesserula* (Curtis, 1828) (Micropeplinae)**

There is a difference of recent opinion on the generic status of this species. It is listed as *Arrhenopeplus tesserula* by Lott (2008a), and in both the French and Palaearctic Catalogues (Tronquet, 2014; Schülke and Smetana, 2015). However, Duff (2012) retains *tesserula* in the genus *Micropeplus*, following Assing and Schülke (2012), who state that the phylogenetic position of *Arrhenopeplus* is not clear according to Tronquet (2008). Here we follow the *Palaearctic Catalogue*.

***Aloconota coulsoni* (Last, 1952) (Aleocharinae)**

This species was recorded by Good and Butler (2001); the records in Kelly and Curry (1985) and Good and Giller (1990) are incorrect due to misidentifications.

***Atheta (Atheta) heymesi* Hubenthal, 1913 (Aleocharinae)**

This species, which is associated with mole and vole nests and burrows in wet habitats (Koch, 1989; Lyszkowski, 1992), was added to the British list in 1992 from specimens taken in Scotland (Lyszkowski, 1992; Sinclair, 1992). It is listed as Irish 'IR' in the *Palaearctic Catalogue*, but we have been unable to locate any Irish records. Consequently, it is omitted from the list until a record is confirmed.

***Atheta (Atheta) olbrichi* Scheerpeltz, 1947 (Aleocharinae)**

Atheta (*Atheta*) *olbrichi* was described by Scheerpeltz (1947) on the basis of two females from Vienna, Austria. It was listed as a valid species in the first edition of the *Palaearctic Catalogue* (Smetana, 2004a). However, based on an examination of the Scheerpeltz types, *olbrichi* was synonymised with *A. taxiceroides* Munster, 1932 by Ádám (2008). Previously, however, Lohse and Lucht (1989) had illustrated the male hind-body tergite VIII of '*olbrichi*', which had a different shape to that of *Atheta picipes* (Thomson); the aedeagi of both were identical. Ádám (2008) concluded that the male illustrated in Lohse and Lucht (1989) was in fact "... an aberrant (but not specifically rare) form of *Atheta picipes* ...". Good and Butler (1995) recorded *A. olbrichi* from Powerscourt, County Wicklow, in the company of *A. picipes*, but based on the opinion of Dr G. A. Lohse at the time, did not consider it to be a species separate from *picipes*. It has also been found in Ballyseedy Wood, County Kerry (reported as part of *picipes* in Good (2007)). These records were based on male specimens, and it is important to point out that they are not *taxiceroides*, which is so far only known from County Tyrone (Bryan and Anderson, 2014b).

***Bessobia* (= *Atheta*) *fungivora* (Thomson, 1867) (Aleocharinae)**

The original record from Clonbrock, County Galway was rejected, but a new record from Hollymount, County Down was also added, by Anderson (2011a).

***Bessobia* (= *Atheta*) *occulta* (Erichson, 1837) (Aleocharinae)**

Anderson (1997) noted that the Buckle record for the Foyle District was doubtful, but that Irish specimens had been confirmed by Good (*in litt.*). However, the Irish record confirming this species was cited incorrectly in Anderson, Nash and O'Connor (1997, Note 123) as being from Good (1991) (as referenced therein). The record has not been published until now:

CORK: Glinny (near Riverstick) (W66975909), 3 July 1985, 1♀ from a pitfall trap, old (sheep-grazed) pasture, leg. J. A. Good, det. confirmed by P. M. Hammond.

Bessobia occulta has subsequently been recorded from Belvoir Forest, County Down and five other sites in northern Ireland (RA), as well as from County Meath (Good, 2011) and County Kildare (Good, 2005).

***Bibloplectus pusillus* (Denny, 1825) (Pselaphinae)**

Pearce (1951) cites "Killarney and Muckross, Kerry N." for what he then considered was *'pusillus* (Denny)'. However, the correct *pusillus* (Denny 1825) is not this species (Pearce, 1955, 1957), but Pearce does not, in these subequent publications, mention a synomym for *pusillus* sensu Pearce (1951). Lott (2008a) cites "*pusillus* sensu Pearce, 1951 non (Denny, 1825)" as a synonym for *spinosus* Raffray, although it is likely that more than one species was included under *pusillus* sensu Pearce (1951). This concluson was supported by the identity of a male E. F. Bullock specimen in the NMI (labelled "Bunroe, Killarney, 3.24, EFB / *Bibloplectus pusillus* Denny, *t* = Britten, 1935") which, on dissection, proved to be *B. ambiguus* (Reichenbach) (JAG). Until a dissected specimen confirming the true *B. pusillus* from the Killarney area is located, it is preferable to omit this species from the list.

***Bibloplectus spinosus* Raffray, 1914 (Pselaphinae)**

(= *ambiguus* sensu Pearce, 1951)

Recorded from Stradbally, County Kerry by Owen (1995), but there are also earlier records from County Armagh and the Killarney district (as *ambiguus* sensu Pearce, 1951) cited by Pearce (1951). It is also reported from Carrigullian Lough, County Down (B. Nelson and D. A. Lott, *in litt.*).

***Bibloplectus tenebrosus* (Reitter, 1880) (Pselaphinae)**

(= *margaretae* Sharp, 1916)

Pearce (1951) stated: "I have only seen the true *margaretae* from Sully Is., Glamorgan, where I have taken it myself; and from the New Forest and Hurn, Hants. S.; also from Killarney, Kerry N." Later, Pearce (1957) stated: "I have only seen undoubted specimens of this species from the New Forest area, Brockenhurst, Hurn, S. Hants."; and in 1970 he clarified the other records: "I am aware that in my paper on the genus *Bibloplectus* (1951 *Ent. mon. Mag.* **87**: 65-83) I recorded this species from Glamorganshire and Co. Kerry. I am not now convinced that these identifications were correct." (Pearce, 1970). The species is therefore omitted from the Irish list.

***Bibloporus bicolor* (Denny, 1825) (Pselaphinae)**

British *Bibloporus bicolor* included two species: *B. bicolor* and *B. minutus* Raffray, 1914 (Lott, 2008a). *B. bicolor* is described as a rare old growth woodland species by Alexander and Anderson (2012), and has records for at least four sites scattered across Ireland, so this species is retained on the list. There are no records for *B. minutus* in Ireland.

***Bledius annae* Sharp, 1911 and *Bledius pallipes* (Gravenhorst, 1806) (Oxytelinae)**

Lott (2008b) included records of this *Bledius pallipes* (Gravenhorst, 1806) from Counties Derry/Londonderry and from Tipperary, and considered it likely that Irish records of *B. annae* would all refer to *B. pallipes*. A W. F. Johnson specimen from County Donegal in the NMI, labelled "Ardara / 10.5.94 Johnson / *pallipes*", referable to the Ardara record mentioned under *B. annae* by Anderson (1997) was redetermined (by JAG) as *B. pallipes* using the key and desciptions in Lott (2009a) and Schülke (2012). A potential nineteenth century record was rejected by Good and Boxshall (2014). Taking into account the above, *B. annae* is replaced by *B. pallipes* on the list below, until valid specimens of *B. annae* become available.

***Bledius atricapillus* (Germar, 1825) (Oxytelinae)**

This was listed as a synonym of *Bledius praetermissus* Williams, 1929, in Anderson, Nash and O'Connor (1997). Lott (2011) included both provisionally as separate species. However, Schülke (2011) synonymised *praetermissus* with *atricapillus*, and this has been followed by Duff (2012). *B. praetermissus sensu auctt.* is now *B. lohsei* Schülke, 2011; this species is only known from south-east England, and not from Ireland (Schülke, 2011).

***Bledius furcatus* (Olivier, 1811) (Oxytelinae)**

Fowler (1888) cited two records from Ireland for this species (as *Bledius taurus* (Germar)): "North Bull and Howth, near Dublin." Under *B. spectabilis* Kraatz, Fowler does not cite any Irish records. Johnson and Halbert (1902), contrariwise, cite McNab (1878) for two records of *B. spectabilis*: "Dublin (North Bull and Howth)", but do not mention *B. furcatus*. In Great Britain, *B. furcatus* is only known from south-east England (Hyman and Parsons, 1994; Hammond, 2000; Lott, 2009a). We have not seen McNab (1878), but it appears very likely that Fowler's citation of *B. furcatus* was in error. Accordingly, it is removed from the list.

***Bledius spectabilis* Kraatz, 1857 and *B. frisius* Lohse, 1978 (Oxytelinae)**

Lott (2011) pointed out that Schülke (2010) found the type of *Bledius spectabilis* Kraatz to refer to *B. limicola* sensu auctt., so *B. spectabilis* is used here for *B. limicola* sensu Anderson, Nash and O'Connor (1997). In addition, the species referred to as *B. spectabilis* sensu Lott

(2009) becomes *B. frisius* Lohse, 1978 (Lott, 2011). Telfer (2009) confirmed both species as occurring in Northern Ireland.

***Bledius talpa* (Gyllenhal, 1810) (Oxytelinae)**

Two 19th century specimens, marked Irish, standing under (as was the the custom) the label *Bledius talpa* in the Tardy Collection in Trinity College Dublin were found to be misidentified (Good, 2013). Lott (2008b) discussed the invalid status of old records of this species in Great Britain.

***Bolitochara tecta* Assing, 2014 (Aleocharinae)**

Assing (2014) revised the West Palaearctic species of the genus *Bolitochara*, and found that the name *B. lucida* (Gravenhorst, 1802) was misinterpreted, and applies to a species with a more restricted central and south-eastern European distribution. Irish specimens recently collected from Glenmore Wood and Parkanaur, County Tyrone have been examined (by RA) and are *B. tecta*. The name *B. tecta* Assing, 2014, applies to the species previously known as *B. lucida* sensu auctt. nec Gravenhorst 1802 in Great Britain and Ireland.

***Brachygluta haematica* (Reichenbach, 1816) (Pselaphinae)**

This taxon is now considered to be a complex of species (originally subspecies) (Besuchet, 1999), of which *Brachygluta simplicior* Raffray, 1904 and *B. sinuata* (Aubé, 1833) are also recorded from England in addition to *B. haematica* (Sabella *et al*., 2004; Lott, 2008a). A series of females from the E. F. Bullock Collection, standing over the label *B. haematica* in the NMI, were determined (by JAG) as *B. haematica* using the key and descriptions in Sabella *et al*. (2004), so this name is retained on the list.

***Brachygluta waterhousei* (Rye, 1869) (Pselaphinae)**

There is one record for this species, from Portmarnock, County Dublin (Halbert, 1900; Hammond, 2000), and this is apparently the most northerly locality in its European range (cf. Hammond 2000; Vorst, 1995; Löbl and Besuchet, 2015). A female with the labels 'Ptmk' (green label) and '202.97', in the NMI, was determined as *Brachygluta waterhousei* using the key in Besuchet (1974), the description in Jeannel (1950), and with an English reference specimen. The Portmarnock specimen was noticeably dark with contrasting reddish elytra, not as uniformly reddish as in the English specimen and as described in Pearce (1957). However, Jeannel (1950: 303) described the species as (in translation): "Brownish, elytra reddish-brown".

The date for this species is given in Lott (2008a) as Rye, 1869, as the name *waterhousei* was used to replace *simplex*, which was preoccupied (see note 168 in Lott (2008a)). The 1882 date is used in the *Palaearctic Catalogue* and the French Catalogue (Tronquet, 2014).

***Brachygluta xanthoptera* (Reichenbach, 1816) (Pselaphinae)**

(= *depressa* Aubé, 1833)

This species is listed as Irish in the *Palaearctic Catalogue*. However, it is likely to be an error based on the presence of *depressa* in previous lists, where *depressa* sensu auctt. non (Aubé, 1833) is a synonym of *waterhousei* (Rye, 1869) (Lott, 2008a). Note also that Rye (1869) used the name *waterhousei* prior to Rye (1882) (Lott, 2008a; see note above).

***Bryoporus cernuus* (Gravenhorst, 1806) (Tachyporinae)**

Although not included in the list of Anderson, Nash and O'Connor (1997), *Bryoporus cernuus* is listed as Irish in the *Palaearctic Catalogue* (Schülke and Smetana, 2015). Fowler (1888) recorded this species as: "mentioned by Haliday as from near Belfast", presumably based on the record in Haliday (1885). Johnson and Halbert (1902) state of this record: "Recorded as *Bolitobius cernuus* in this reference [Haliday, 1885], but listed as [*Megacronus cernuus* v. *merdarius*] in Mr. Haliday's MS. Irish list. Unfortunately the specimens cannot be traced."

Haliday's MS *List of Irish Insects*, from which the orginal record appears to be derived, lists after "*Megacronus*" both "*cernuus*" and v. *merdarius*", each followed by an icon of a vertical line within a circle, which is explained in the front page of his MS list as "locality of specimen indigenous, name not insect", which can be interpreted (see Good, 2013) as meaning that the identity is doubful. There is also a cross-out sign ("X") in pencil opposite these species. This strongly indicates that Haliday did not verify *Bryoporus cernuus* as being Irish. The Belfast list (Haliday, 1885) was published posthumously (Haliday died in 1870 (Nash and O'Connor, 2011)); it was edited by the eminent naturalist S. A. Stewart. However, Stewart was primarily a botanist, and not a coleopterist, so he would not have edited the list critically. Johnson and Halbert (1902) said of this list: "It is much to be regretted that in this list no author's names are given, as the omission has made it very diffcult in many cases to determine what species Haliday really referred to; indeed, in some instances we have considered it best to overlook the records altogether, and thus avoid introducing species which he never intended to authorise." From the late 1850's until his death, Haliday concentrated mainly on Diptera and microhymenoptera (Nash and O'Connor, 2011), and his MS list of Irish Coleoptera was never fully critically updated. Taking all the above into account, as well as the known British distribution of this species, we conclude that the Irish record of *B. cernuus* is very doubtful, and its 'IR' should be deleted from the *Palaeactic Catalogue*.

***Carpelimus pusillus* (Gravenhorst, 1802) (Oxytelinae)**

The record of this species in Good and Giller (1990) was based on a misidentification. However, it was subsequently recorded from near Navan, County Meath (Good, 2011) (where it may have originated from the nearby River Boyne), and there are ten other recent records (RA, Oscar Vorst, JAG).

***Ceritaxa* (= *Neohilara*) *subterranea* (Mulsant & Rey, 1853) (Aleocharinae)**

Neohilara was synonymised with *Ceritaxa* by Assing (2015).

***Cypha ovulum* (Heer, 1839) (Aleocharinae)**

The status in Britain of *Cypha ovulum* was queried in Hyman and Parsons (1994) and Lott and Duff (2003), and subsequently omitted from the recent check-list by Lott (2008a). The only Irish specimen labelled *ovulum* which has so far been dissected has proved to be *seminulum* (= *hanseni*) (Good and O'Connor, 2004). Until such time as the remaining specimens are examined, it is preferable therefore to remove the species from the list.

***Dimetrota ischnocera* Thomson, 1870 (Aleocharinae)**

This species, attributed to the genus *Dimetrota* in Lott (2008a), is listed under *Atheta* subgenus *Badura* in Tronquet (2014) and Schülke and Smetana (2015); here, it is listed as *Badura ischnocera*.

***Euplectus duponti* Aubé, 1833 (Pselaphinae)**

There has been confusion over this name (Lott, 2008a), and it is not yet known if Irish specimens are *duponti*, *decipiens* Raffray, 1910, or some other *Euplectus* species. However, Pearce (1957) stated that "the only localities I am certain of are ... and Killarney, Co. Kerry." On this basis *E. duponti* is listed until the identity of Irish specimens can be confirmed.

***Euplectus punctatus* Mulsant, 1861 and *E. tholini* (Guillebeau, 1888) (Pselaphinae)**

Euplectus punctatus was added to the Irish list on the basis of the "Co. Kerry" record cited by Pearce (1957) (Anderson, Nash and O'Connor, 1997). However, Pearce subsequently (1974) stated that: "Probably the only genuine record for *E. punctatus* is Sherwood Forest". *E. punctatus* has since been recorded from a number of other sites in the Midlands of England (subsp. *tholini* Guillebeau, 1888) and also in Scotland (subsp. *punctatus*) (Johnson, 1977; Hyman and Parsons, 1994), and it is a highly-scored ancient woodland species (Fowles, Alexander and Key, 1999). The subspecies have now been raised to species status (Lott, 2008a; Tronquet, 2014; Löbl and Besuchet, 2015), and presumably the Irish record would apply to *E.*

tholini. But given the doubt expressed by Pearce (1974) about the record, and the frequent misidentification of *E. karstenii* as this species (Vorst, 1995), it has not been included on the list, pending a re-examination of the Pearce Kerry specimen(s) or its discovery elsewhere. The record for this species for North Kerry, cited from Power (1878) by Alexander and Anderson (2012), was an error.

***Eusphalerum primulae* (Stephens, 1834) (Omaliinae)**

Walker (1895: 211) recorded *Eusphalerum primulae* "between Bangor and Newtownards, Co. Down ... by sweeping", reporting it as "not rare". There are no subsequent records. Although Walker states in the introduction that "all the species on which I had any doubt have been examined and identified by my friend, Mr. G.C. Champion", it is possible that he identified *E. primulae* himself as it is not particularly difficult to distinguish from related species. One of us (RA) has extensively searched for this floricolous species in County Down and elsewhere without success, and the other (JAG) has examined over three hundred *Primula vulgaris* and *P. veris* flowers in the Burren, County Clare (13 May 2015) also without success. However, we have not had the opportunity to trace the Walker specimens. Assuming that the identification was correct, the possibility of specimens being introduced on flowers imported from Great Britain and then establishing locally for a few years cannot be ruled out. Given its predominantly southerly distribution in Great Britain, if native in Ireland it would be expected to have been discovered elsewhere further south. Until further specimens are discovered, we considered it precautionary to omit this species from the list.

***Eutheia plicata* (Gyllenhal, 1813) (Scydmaeninae)**

The Haliday specimen of this species, upon which the Irish record was based (Johnson and Halbert, 1902), was redetermined as *Eutheia schaumii* Kiesenwetter (Good, 2014).

***Gabrius austriacus* Scheerpeltz, 1947 and *G. velox* Sharp, 1910 (Staphylininae)**

Gabrius austriacus is listed in the *Palaearctic Catalogue* (Schülke and Smetana, 2015) as Irish ('IR'), but it is not clear if this is an error of interpretation of the Irish record of *G. velox* Sharp (see Schillhammer and Lott, 2001), or is based on a record from a reliable source that we are not aware of. (*G. velox* is not listed as Irish in the *Palaearctic Catalogue*). Until this is clarified it is considered precautionary to omit *G. austriacus* from the present list. The single Irish record of *Gabrius velox* is from Killarney, County Kerry, prior to 1935, and was determined by an experienced British coleopterist (Bullock, 1935), although specimens standing under this name in the NMI collection proved to be *G. breviventer* (Sperk) (JAG).

***Gabrius sexualis* Smetana, 1954 (Staphylininae)**

Gabrius sexualis was recorded from Cloghane, County Kerry by Schillhammer (2009), based on a male specimen collected by N. H. Joy in 1909. It has not been recorded from Great Britain (Duff, 2012). However, this species is very similar to the common *G. breviventer* (Sperk), and Good (unpublished) found variation, in Kerry specimens of *G. breviventer*, in the critical aedeagal characters separating the two species. Although the status of this species in Ireland needs further investigation, it is nevertheless included on the list until this is completed. In France, this species has a Mediterranean distribution (Corsica and the Maritime Alps) (Tronquet, 2014).

***Heterothops niger* Kraatz, 1868 (Staphylininae)**

Although listed a subspecies by Tronquet (2014) and Schülke and Smetana (2015), it is retained as a species, as is the case in Lott and Anderson (2011), based on the reasoning of Lott (2008c).

***Lathrobium zetterstedti* Rye, 1872 (Paederinae)**

Johnson and Halbert (1902) recorded "*L. punctatum* Zett." from Waterford (1894, J. J. Walker, *in litt.*). This corresponds to the "*L. punctatum* Zett." of Fowler (1888), which is a synonym of *L. fovulum* Stephens (O'Mahony, 1929; Pope, 1977; Anderson, Nash and O'Connor, 1997). Joy cites *Lathrobium fovulum* as being recorded from Munster, probably based on the above Waterford record mentioned by O'Mahony (1929). However, Joy also cites *L. zetterstedti* (as "*L. punctatum* Zetterstedt (*atripalpe* Brit. Cat.)") from Munster, which could be based on the above Johnson and Halbert record, without Joy realising that it was the same Waterford record as *L. fovulum*. In addition, Joy (1932) records an Ulster record for *L. zetterstedti*, which Anderson (1997) considered probably referred to the Shane Castle (County Antrim) record of "*L. punctatum*". It cannot be excluded that the latter also meant what we know take to mean *L. fovulum*, and until an examination of the Antrim specimen(s) proves otherwise, *L. zetterstedti* is omitted from the current list.

***Microdota subtilis* (Scriba, 1866) (Aleocharinae)**

Microdota subtilis sensu Lott (2008a) has been transferred to *Atheta* subgenus *Dimetrota* in Schülke and Smetana (2015), although it is still listed under *Atheta* (*Microdota*) by Tronquet (2014); here, it is listed as *Dimetrota subtilis*.

***Mocyta* (= *Atheta*) *orphana* (Erichson, 1837) (Aleocharinae)**

Added by Good and Butler (2001) from three sites in Couties Clare and Galway. However, a review (by JAG) of the specimens upon which these records are based indicates that they are not this species, but some other taxon in the *Atheta fungi* complex. The species is consequently removed from the list.

***Mycetoporus piceolus* Rey, 1883 (= *erichsonanus* Fagel, 1965) (Tachyporinae)**

Recently synonymised in Schülke and Smetana (2015).

***Myllaena gracilicornis* Fairmaire & Brisout, 1859 (Aleocharinae)**

This species, known in Great Britain only from a single specimen collected in 1882 in the Isle of Wight (Hyman and Parsons, 1994), has a most anomalous presence on the Irish list. It was recorded by Bullock (1930) from *Sphagnum* in a bog near Killarney, County Kerry, and the specimens were determined as *gracilicornis* by Major Ste.-Claire Deville. However, Kevan (1968), following Strand (1967), pointed out that *gracilicornis* as understood in Northern Europe applied to *kraatzi* Sharp, a species regularly occurring in *Sphagnum* (Horion, 1967; Hyman and Parsons, 1994) and much more likely to be the Kerry *'gracilicornis'*. Indeed, two of the NMI Bullock specimens, labelled 'Guitane, Killarney, 8.34, E.F.B.', were redetermined (by JAG) as *kraatzi* Sharp, using the key in Lohse (1974). *M. gracilicornis* is therefore deleted from the Irish list.

***Mymecopora brevipes* Butler, 1909 (Aleocharinae)**

The recorded distrbution of *Mymecopora brevipes sensu* Hammond (2000) is figured in a map in Hammond (2000) showing records from Counties Kerry and Wexford. This species is the equivalent of *M. oweni* Assing, 1997 (Owen, 1999; Lott, 2008a). Hammond (2000) states: "Unfortunately, the species identified by Assing as *M. brevipes* Butler is not, in fact, that species and apparently remains undescribed, while the species described as *M. oweni* Assing is the true *M. brevipes*, the latter name taking precedence (P. M. Hammond, unpublished)." This seems to be contradicted by the statement in Owen (1999) that "Assing's *brevipes* is consistent with the brief description which Butler provided for his species whereas oweni is not". However, we provisionally follow Hammond's concept of *M. brevipes* Butler (= *oweni* Assing) here, in contrast to Lott (2008a) and Schülke and Smetana (2015) who list *M. oweni*. (The *M. brevipes sensu* Lott (2008a) is listed as *Myrmecopora* sp. by Hammond (2000) and is not known from Ireland).

In the absence of a description of this *Myrmecopora* sp., *M. brevipes* Butler *sensu* Assing (1997) is listed as Irish in Schülke and Smetana (2015), whereas *M. oweni* Assing is not. However, according to its nomenclature the *Palaearctic Catalogue* needs to be corrected not to list 'IR' for *M. brevipes*, but to list 'IR' for *M. oweni* instead.

***Paederus littoralis* Gravenhorst, 1802 (Paederinae)**

This record was determined by Good and O'Connor (2009) to be based on a specimen of dubious provenance, and rejected. A further early nineteenth century specimen marked Irish, in the Tardy Collection in the Dublin University Zoological Museum, was also rejected as it is likely to have been an English specimen marked Irish in error (Good and Boxshall, 2014). The species is therefore deleted from the Irish list.

***Philonthus corruscus* (Gravenhorst, 1802) (Staphylininae)**

This species is listed in both editions of the *Palaearctic Catalogue* (Smetana, 2004b; Schülke and Smetana, 2015) as Irish ('IR'). It is mentioned in Horion (1965) as occurring in Europe "north only to Ireland, southern England (Wales [sic], rare) and Denmark ...". Horion usually relied on Joy (1932) as a source of distributional data from Great Britain and Ireland, but Joy (1932) mentions only southern England and Wales, and not Ireland. It is not clear, therefore, if this is an error, or is based on another record from a reliable source that we are not aware of. Until this is clarified it is considered precautionary to omit the species from the present list.

***Philonthus rufipes* (Stephens, 1832) (Staphylininae)**

Horion (1967) cites this species (as *immundus* Gyllenhal) from "England u. Irland", but without citing a source. Joy (1932) only mentions Britain (for *P. immundus*). Presumably the Horion citation is the basis for its listing as Irish ('IR') in the *Palaearctic Catalogue* (Schülke and Smetana, 2015). Until the source of this record is clarified, it is considered precautionary to omit the species from the present list.

***Phytosus nigriventris* (Chevrolet, 1843) (Aleocharinae)**

The only Irish record of this species was from Baldoyle (County Dublin) in 1902: "a single specimen ... in company with *P. balticus*" (Kemp, 1903). No further Irish records are given by Anderson, Nash and O'Connor (1997) or mapped by Hammond (2000). The Kemp specimen is in the NMI, labelled "Baldoyle, 27 x 02" (underside of the specimen mount), and "Kemp Coll., 11-1910". It was confirmed (by JAG) as *Phytosus nigriventris* using Lohse (1974) and Fowler and Donisthorpe (1913) in comparison with a J. H. Keys reference specimen from Plymouth.

***Platystethus degener* Mulsant & Rey, 1878 (Oxytelinae)**

This species is listed as Irish ('IR') in the *Palaearctic Catalogue*. Johnson and Halbert (1902) cited records from Counties Cork, Galway and Waterford for *Platystethus cornutus* Gyllenhal. Hammond (1971) was of the opinion that these records may refer to *P. degener*, although Anderson (2007) and Lott (2009a) cited *P. cornutus*, not *P. degener*, as occurring in southern Ireland, and the former has been recently taken at the Raven, County Wexford (RA). *P. degener* is omitted from the list until confirmed material is available.

***Quedius longicornis* Kraatz, 1857 (Staphylininae)**

Like *Paederus littoralis* (above), the sole Irish record was considered to be based on a specimen of dubious provenance, and rejected by Good and O'Connor (2009).

***Quedius nemoralis* Baudi de Selve, 1848 (Staphylininae)**

This species was listed in Good and Butler (2000) from Moorlagh, County Donegal, without further comment on its status. However, it was a misidentification of *Quedius humeralis* Stephens, and is not included in this list. The single female, on which the record was based, was originally determined using the pronotal shape in the key by Lohse (1964); more recent keys (Coiffait, 1978; Lott and Anderson, 2011; Solodovnikov, 2012) do not mention this character but rely solely on aedeagal characters to separate *humeralis* and *nemoralis*.

***Quedius ochripennis* Ménétriés, 1832 (Staphylininae)**

This species is listed in the *Palaearctic Catalogue* (Schülke and Smetana, 2015) as Irish ('IR'). However, it probably refers to the '*ochripennis* sensu auctt. Brit. non Ménétriés' cited in Lott (2008a), which was based on an earlier representation of *invreae* Gridelli as *ochripennis* Ménétriés in Britain (Last, 1956; Johnson, 1967). It is therefore omitted from the list.

***Schistoglossa curtipennis* (Sharp, 1869) (Aleocharinae)**

Added by Telfer (2009) from near the Giant's Causeway, County Antrim, but being a female it could also possibly be *Schistoglossa bergvalli* Palm, 1968 (Telfer, 2009). A female was also recorded from Little Dog, County Fermanagh (RA). Until an Irish male specimen is discovered, it is provisionally included on the list as the more widespread (in Britain) and more likely *S. curtipennis*.

***Stenus aceris* Stephens, 1833 (Steninae)**

Attributed in error to Moore (1981) in Anderson, Nash and O'Connor (1997), but added subsequently by Regan and Anderson (2004) and confirmed by Anderson (2013a).

***Stenus ater* Mannerheim, 1830 (Steninae)**

This species was reported by Helden, Anderson and Purvis (2008) from improved grassland in County Wexford. Unfortunately, the voucher specimen could not be located. This record is unlikely, as *Stenus ater* is usually an inhabitant of dry (especially calcareous) grassland in Great Britain (Lott and Anderson, 2011). It has not been included on the list, until such time as it is confirmed by a further specimen.

***Stenus brevipennis* Thomson, 1851 (Steninae)**

Considered a valid species by Kevan and Allen (1962) and Lott and Anderson (2011), but listed as a subspecies of *Stenus picipes* by Puthz (2012) and Schülke and Smetana (2015).

***Stenus canescens* Rosenhauer, 1856 (Steninae)**

There is a record from Muckross (near Killarney), County Kerry, from Janson (1920) but this was considered doubtful by Anderson (1984) and a reference specimen could not be traced. It was consequently omitted from the list in Anderson, Nash and O'Connor (1997). However, the species is still listed as Irish in the *Palaearctic Catalogue* (Schülke and Smetana, 2015), probably based on the above record as cited by Joy (1932) and Horion (1963). Until it is confirmed as Irish, based on a Janson specimen or on a more recent record, it is considered precautionary to omit the species from the present list.

***Stenus ochropus* Kiesenwetter, 1858 (Steninae)**

Similarly, *Stenus ochropus* was omitted from the list by Anderson, Nash and O'Connor (1997) on the grounds that one or more specimens supporting the record by J. J. Walker from Galway (cited in Johnson and Halbert, 1902) could not be traced (Anderson, 1984). However, the species is also listed as Irish ('IR') in the *Palaearctic Catalogue* (Schülke and Smetana, 2015), probably based on the above record and its mention as Irish by Horion (1963). Until it is confirmed as Irish, based on a Walker specimen or on a more recent record, it is considered precautionary to omit the species from the present list.

***Stenus palposus* Zetterstedt, 1838 (Steninae)**

It is always risky to pronounce a species as regionally extinct, especially where there has been insufficient searching for that species in the right place and at the right time using appropriate techniques. However, in this case the known localities from which *Stenus palposus* had been recorded (see Anderson, 1979) have been thoroughly re-examined without success (Nelson and Anderson, 1999). The species is retained on the list, therefore, but marked regionally extinct.

***Tachyporus formosus* Matthews, 1838 (Tachyporinae)**

This species is included as Irish ('IR') in Joy (1932), Horion (1967) and Schülke and Smetana (2015). However, there have been many false records of this pallid species based on teneral individuals of related *Tachyporus*. There are no known valid Irish records of this species; all specimens standing over *T. formosus* labels in the National Museum of Ireland were checked (by JAG) and found to be different species. The species is therefore deleted from the list.

***Thinobius crinifer* Smetana, 1959 (Oxytelinae)**

Thinobius longipennis sensu lato was listed in Anderson, Nash and O'Connor (1997), who noted that it could be any of three segregate species *viz. T. longipennis* (Heer, 1841), *T. praetor* Smetana, 1959, and *T. crinifer* Smetana, 1959. A male specimen standing over the label *'Thinobius longipennis* (Heer)' in the NMI Bullock Collection, and labelled: "Cahirnane, Killarney, 11.9.31, E.F.B. / Flesk, shingle", was dissected and on aedeagal characters proved to be *T. crinifer* (determined using Lott (2009a) and Schülke and Mackranczy (2012)). *T. crinifer* is therefore listed here instead of *T. longipennis*, pending further investigation of the records cited by Johnson and Halbert (1902) from the Foyle District and Dublin.

***Traumoecia* (= *Atheta*) *taxiceroides* (Munster, 1932) (Aleocharinae)**

See under *Alaobia* (= *Atheta*) *taxiceroides* above.

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CHECK-LIST OF STAPHYLINIDAE RECORDED FROM IRELAND

Genera are listed alphabetically under subfamilies or tribes; species are listed alphabetically under genera. Nomenclature follows Lott (2008a) except where otherwise indicated; taxonomic order of sub-families and tribes follows Duff (2012). Subspecies are, with one exception, not included. Where dates differ between Duff (2012) and Schülke and Smetana (2015), the list here follows the latter as the full reference is given therein. Species added to the list are marked with a '+'; species which have been confirmed as Irish are marked with a 'c'; species referred to in the text are indicated. An index to genera is given in Appendix 1. The numbers on the left side refer to valid genera in the index.

OMALIINAE

1	*Acidota crenata* (Fabricius, 1792)	
	Acidota cruentata Mannerheim, 1830	
2	*Acrolocha sulcula* (Stephens, 1834)	See note on *A. minuta* in text
3	*Acrulia inflata* (Gyllenhal, 1813)	
4	*Anthobium atrocephalum* (Gyllenhal, 1827)	
	Anthobium unicolor (Marsham, 1802)	
5	*Anthophagus alpinus* (Paykull, 1790)	
6	*Coryphium angusticolle* Stephens, 1834	
7	*Deliphrum tectum* (Paykull, 1789)	
8	*Dropephylla devillei* (Bernhauer, 1902)	
	Phyllodrepa devillei Bernhauer, 1902	
	Dropephylla gracilicornis (Fairmaire & Laboulbène, 1856)	
	Dropephylla ioptera (Stephens, 1834)	
	Dropephylla vilis (Erichson, 1840)	
9	*Arpedium brachypterum* (Gravenhorst, 1802)	
	Eucnecosum brachypterum (Gravenhorst, 1802)	Synonymised by Zanetti (2008)
10	*Eusphalerum luteum* (Marsham, 1802)	
	Eusphalerum minutum (Fabricius, 1792)	
11	*Geodromicus nigrita* (Müller, 1821)	
12	*Hapalaraea pygmaea* (Paykull, 1800)	
13	*Lesteva hanseni* Lohse, 1953	
	Lesteva longoelytrata (Goeze, 1777)	
	Lesteva monticola Kiesenwetter 1847	
	Lesteva pubescens Mannerheim, 1830	
	Lesteva punctata Erichson, 1839	
	Lesteva sicula Erichson, 1840	Subspecies *heeri* Fauvel, 1871
14	*Micralymma marinum* (Ström, 1783)	

15		*Olophrum fuscum* (Gravenhorst, 1806)	
		Olophrum piceum (Gyllenhal, 1810)	
16		*Omalium allardii* Fairmaire & Brisout de Barneville, 1859	
		Omalium caesum Gravenhorst, 1806	
		Omalium excavatum Stephens, 1834	
		Omalium exiguum Gyllenhal, 1810	
		Omalium italicum Bernhauer, 1902	
		Omalium laeviusculum Gyllenhal, 1827	
		Omalium oxyacanthae Gravenhorst, 1806	
		Omalium riparium Thomson, 1857	
		Omalium rivulare (Paykull, 1789)	
		Omalium rugatum Mulsant & Rey, 1880	
		Omalium rugilipenne Rye, 1864	
		Omalium septentrionis Thomson, 1857	
17		*Philorinum sordidum* (Stephens, 1834)	
18		*Phloeonomus punctipennis* Thomson, 1867	
		Phloeonomus pusillus (Gravenhorst, 1806)	
19		*Phloeostiba plana* (Paykull, 1792)	
20		*Phyllodrepa floralis* (Paykull, 1789)	
		Phyllodrepa puberula Bernhauer, 1903	
21		*Phyllodrepoidea crenata* (Ganglbauer, 1895)	
22		*Xylodromus concinnus* (Marsham, 1802)	
		Xylodromus brunnipennis sensu auctt.	
		Xylodromus depressus (Gravenhorst, 1802)	
23	+	*Xylostiba monilicornis* (Gyllenhal, 1810)	Armagh, Down (Anderson, 2012b)

PROTEININAE

24		*Megarthrus bellevoyei* (Saulcy, 1862)	
		Megarthrus affnis Miller, 1853	
		Megarthrus denticollis (Beck, 1817)	
		Megarthrus depressus (Paykull, 1789)	
		Megarthrus sinuatocollis (Lacordaire, 1835)	
		Megarthrus prosseni Schatzmayr, 1904	
		Megarthrus depressus sensu auctt.	
25		*Metopsia clypeata* (Müller, 1821)	
		Metopsia retusa (Stephens, 1834)	
26		*Proteinus atomarius* Erichson, 1840	
		Proteinus brachypterus (Fabricius, 1792)	
	+	*Proteinus crenulatus* Pandellé, 1867	Armagh (Anderson, 2014)

	Proteinus laevigatus Hochhuth, 1872	Not listed as Irish in *Pal. Cat.*
	Proteinus macropterus sensu auctt.	
	Proteinus ovalis Stephens, 1834	

MICROPEPLINAE

27	*Arrhenopeplus tesserula* (Curtis, 1828)	See note in text
	Micropeplus tesserula Curtis, 1828	
28	*Micropeplus caelatus* Erichson, 1839	
	Micropeplus fulvus Erichson, 1840	
	Micropeplus porcatus (Paykull, 1789)	
	Micropeplus staphylinoides (Marsham, 1802)	
	[*Micropeplus tesserula* Curtis, 1828	See *Arrhenopeplus*]

PSELAPHINAE

29	*Bibloplectus ambiguus* (Reichenbach, 1816)	
	Bibloplectus spinosus Raffray, 1914	See note in text
30	*Bibloporus bicolor* (Denny, 1825)	See note in text
31	*Brachygluta fossulata* (Reichenbach, 1816)	
	Brachygluta haematica (Reichenbach, 1816)	See note in text
	Brachygluta helferi (Schmidt-Göbl, 1836)	
	Brachygluta waterhousei Rye, 1869	See note in text
	Brachygluta simplex (Waterhouse, 1862)	
32	*Bryaxis bulbifer* (Reichenbach, 1816)	
	Bryaxis curtisii (Leach, 1817)	
	Bryaxis puncticollis (Denny, 1825)	
33	*Bythinus burellii* Denny, 1825	
	Bythinus macropalpus Aubé, 1833	
34	*Claviger testaceus* Preyssler, 1790	
35	*Euplectus duponti* Aubé, 1833	See note in text
	Euplectus infirmus Raffray, 1910	
	Euplectus karstenii (Reichenbach, 1816)	
	Euplectus mutator Fauvel, 1895	
	Brachygluta fauveli Guillebeau, 1888	
	Euplectus piceus Motschulsky, 1835	
	Euplectus sanguineus Denny, 1825	
36	*Fagniezia impressa* (Panzer, 1803)	
	Trissemus impressa (Panzer, 1803)	
37	*Pselaphaulax dresdensis* (Herbst, 1791)	
38	*Pselaphus heisei* Herbst, 1791	

39	*Reichenbachia juncorum* (Leach, 1817)	
40	*Rybaxis longicornis* (Leach, 1817)	
	Rybaxis laminata (Motschulsky, 1836)	
41	*Tychus niger* (Paykull, 1800)	

PHLOEOCHARINAE

42	*Phloeocharis subtilissima* Mannerheim, 1830	

TACHYPORINAE

43	*Bolitobius castaneus* (Stephens, 1832)	
	Bolitobius analis sensu auctt.	
	Bolitobius cingulatus Mannerheim, 1830	
44	*Cilea silphoides* (Linnaeus, 1767)	
45	*Ischnosoma longicorne* (Mäklin, 1847)	
	Mycetoporus longicornis Mäklin, 1847	
	Ischnosoma splendidum (Gravenhorst, 1806)	
	Mycetoporus splendidus (Gravenhorst, 1806)	
46	*Lamprinodes saginatus* (Gravenhorst, 1806)	
47	*Lordithon exoletus* (Erichson, 1839)	
	Lordithon lunulatus (Linnaeus, 1760)	
	Lordithon thoracicus (Fabricius, 1777)	
	Lordithon trinotatus (Erichson, 1839)	
48	*Mycetoporus angularis* Mulsant & Rey, 1853	
	Mycetoporus clavicornis (Stephens, 1832)	
	Mycetoporus despectus Strand, 1969	
	[*Mycetoporus erichsonanus* Fagel, 1965]	Synonym of *M. piceolus* (q.v.)
	Mycetoporus lepidus (Gravenhorst, 1806)	
	Mycetoporus longulus Mannerheim, 1830	
	Mycetoporus nigricollis Stephens, 1835	
	Mycetoporus piceolus Rey, 1883	See note in text
	Mycetoporus erichsonanus Fagel, 1965	Synonym in Schülke & Smetana (2015)
	Mycetoporus punctus (Gravenhorst, 1806)	
	Mycetoporus rufescens (Stephens, 1832)	
49	*Parabolitobius inclinans* (Gravenhorst, 1806)	
	Bolitobius inclinans (Gravenhorst, 1806)	
50	*Sepedophilus immaculatus* (Stephens, 1832)	
	Sepedophilus littoreus (Linnaeus, 1758)	
	Sepedophilus marshami (Stephens, 1832)	
	Sepedophilus nigripennis (Stephens, 1832)	

Sepedophilus pedicularius (Gravenhorst, 1802)
51 *Tachinus elongatus* Gyllenhal, 1810
Tachinus humeralis Gravenhorst, 1802
Tachinus laticollis Gravenhorst, 1802
Tachinus marginellus (Fabricius, 1781)
Tachinus pallipes (Gravenhorst, 1806)
Tachinus proximus Kraatz, 1855
Tachinus rufipes (Linnaeus, 1758)
Tachinus signatus Gravenhorst, 1802
Tachinus subterraneus (Linnaeus, 1758)
52 *Tachyporus atriceps* Stephens, 1832
Tachyporus chrysomelinus (Linnaeus, 1758)
Tachyporus dispar (Paykull, 1789)
Tachyporus hypnorum (Fabricius, 1775)
Tachyporus nitidulus (Fabricius, 1781)
Tachyporus obtusus (Linnaeus, 1767)
Tachyporus pallidus Sharp, 1871
Tachyporus pusillus Gravenhorst, 1806
Tachyporus solutus Erichson, 1839
Tachyporus tersus Erichson, 1839
Tachyporus transversalis Gravenhorst, 1806

TRICHOPHYINAE

53 + *Trichophya pilicornis* (Gyllenhal, 1810) Wexford (McCormack, 2009)

HABROCERINAE

54 *Habrocerus capillaricornis* (Gravenhorst, 1806)

ALEOCHARINAE: ALEOCHARINI

55 *Aleochara bilineata* Gyllenhal, 1810
Aleochara bipustulata (Linnaeus, 1760)
Aleochara brevipennis Gravenhorst, 1806
Aleochara cuniculorum Kraatz, 1858
Aleochara curtula (Goeze, 1777)
+ *Aleochara diversa* (Sahlberg, 1876) Armagh (Anderson and Bryan, 2012a)
Aleochara kamila Likovský, 1984 Name in Lott (2008a); see note in text
Aleochara funebris Wollaston, 1864
Aleochara grisea Kraatz, 1856
Polystomota grisea (Kraatz, 1856)

	Aleochara intricata Mannerheim, 1830	
	Aleochara lanuginosa Gravenhorst, 1802	
	Aleochara moerens Gyllenhal, 1827	Not listed as Irish in *Pal. Cat.*
	Aleochara obscurella Gravenhorst, 1806	
	Emplenota obscurella (Gravenhorst, 1806)	
	Aleochara punctatella Motschulsky, 1858	
	Polystomota punctatella (Motschulsky, 1858)	
	Aleochara sparsa Heer, 1839	
+	*Aleochara stichai* Likovský, 1965	Antrim, Armagh, Louth (Bryan and Anderson, 2012); see note in text. Not listed as Irish in *Pal. Cat.*
	Aleochara villosa Mannerheim, 1830	
56	*Tinotus morion* (Gravenhorst, 1802)	

ALEOCHARINAE: ATHETINI

57	*Acrotona aterrima* (Gravenhorst, 1802)	
+	*Acrotona convergens* (Strand, 1958)	Galway, Roscommon (Lott, 2009b)
	Acrotona muscorum (Brisout de Barneville, 1860)	Not listed as Irish in *Pal. Cat.*
+	*Acrotona obfuscata* (Gravenhorst, 1802)	Kildare (Good, 2005), Waterford, Fermanagh (Anderson) and Clare Vorst). Not listed as Irish in *Pal. Cat.*
	Acrotona parvula (Mannerheim, 1830)	
	Acrotona pygmaea (Gravenhorst, 1802)	
	Acrotona sylvicola (Kraatz, 1856)	
58 +	*Adota maritima* (Mannerheim, 1843)	Antrim, Down (Anderson and Bryan, 2011)
59	*Alaobia gagatina* (Baudi di Selve, 1848)	
	Atheta gagatina (Baudi di Selve, 1848)	Name in *Pal. Cat.*
	Alaobia pallidicornis (Thomson, 1856)	See note in text
	Atheta pallidicornis (Thomson, 1856)	Name in *Pal. Cat.*
	Alaobia sodalis (Erichson, 1837)	
	Atheta sodalis (Erichson, 1837)	Name in *Pal. Cat.*
	[*Alaobia subglabra* (Sharp, 1869)	see *Oreostiba subglabra*]
	[*Alaobia taxiceroides* Munster, 1932	Synonym of *Traumoecia taxiceroides*]
	Alaobia trinotata (Kraatz, 1856)	
	Atheta trinotata (Kraatz, 1856)	Name in *Pal. Cat.*
60	*Alevonota rufotestacea* (Kraatz, 1856)	
61	*Alianta incana* (Erichson, 1837)	

62	*Aloconota cambrica* (Wollaston, 1855)	
+	*Aloconota coulsoni* (Last, 1952)	Clare (Good and Butler, 2001) See note in text
	Aloconota currax (Kraatz, 1856)	
	Aloconota gregaria (Erichson, 1839)	
	Aloconota insecta (Thomson, 1856)	
	Aloconota longicollis (Mulsant & Rey, 1852)	
	Disopora longicollis (Mulsant & Rey, 1852)	
	Aloconota planifrons (Waterhouse, 1863)	
	Aloconota sulcifrons (Stephens, 1832)	
63	*Amidobia talpa* (Heer, 1841)	
	Atheta talpa (Heer, 1841)	
64	*Amischa analis* (Gravenhorst, 1802)	
	Amischa bifoveolata (Mannerheim, 1830)	
	Amischa cavifrons (Sharp, 1869)	
	Amischa decipiens (Sharp, 1869)	
	Amischa nigrofusca (Stephens, 1829)	
	Amischa soror (Kraatz, 1856)	
65	*Anopleta corvina* (Thomson, 1856)	
	Atheta corvina (Thomson, 1856)	Name in *Pal. Cat.*
66	*Atheta aeneicollis* (Sharp, 1869)	
	Atheta pertyi sensu auctt.	
	Atheta aquatica (Thomson, 1852)	Not listed as Irish in *Pal. Cat.*
	Atheta aquatilis (Thomson, 1867)	
	Atheta basicornis (Mulsant & Rey, 1852)	
	Atheta britanniae (Bernhauer & Scheerpeltz, 1926)	
	Atheta repanda sensu auctt.	
	Atheta brunneipennis (Thomson, 1852)	
	Atheta castanoptera (Mannerheim, 1830)	
	[*Atheta coriaria* (Kraatz, 1856)	See *Dalotia coriaria*]
+	*Atheta crassicornis* (Fabricius, 1792)	Down (R.C. Welch in Anderson, 2008); common in fungi (Anderson)
	Atheta divisa (Märkel, 1844)	
+	*Atheta ebenina* (Mulsant & Rey, 1873)	Kildare (Good, 2005) Not listed as Irish in *Pal. Cat.*
	Atheta euryptera (Stephens, 1832)	
c	*Atheta fungicola* (Thomson, 1852)	Down (Anderson, 2008)
	Atheta graminicola (Gravenhorst, 1806)	
	Atheta harwoodi (Williams, 1930)	

		Atheta hypnorum (Kiesenwetter, 1850)	
		Atheta incognita (Sharp, 1869)	
		[*Atheta intermedia* (Thomson, 1852)]	See *Dimetrota intermedia*
	+	*Atheta nidicola* (Johannsen, 1914)	Antrim (Bryan and Anderson, 2012)
		[*Atheta nigritula* (Gravenhorst, 1802)	See *Tetropla nigritula*]
	+	*Atheta paracrassicornis* Brundin, 1954	Fermanagh (Anderson and Foster, 2011)
		Atheta pilicornis (Thomson, 1852)	
		Atheta ravilla (Erichson, 1839)	
		Atheta strandiella Brundin, 1954	
		Atheta triangulum (Kraatz, 1856)	
		Atheta vaga (Heer, 1839)	
		Atheta nigricornis (Thomson, 1852) non (Stephens, 1832)	
		Atheta xanthopus (Thomson, 1856)	
67		*Badura cauta* (Erichson, 1837)	
		Atheta cauta (Erichson, 1837)	Name in *Pal. Cat.*
		Dimetrota cauta (Erichson, 1837)	Name in Lott (2008a)
		Badura ischnocera Thomson, 1870	See note in text
		Atheta ischnocera Thomson, 1870	Name in *Pal. Cat*
		Dimetrota ischnocera (Thomson, 1870)	Name in Lott (2008a)
		Badura macrocera (Thomson 1856)	
		Atheta macrocera (Thomson 1856)	Name in *Pal. Cat.*
68	+	*Bessobia excellens* (Kraatz, 1856)	Galway (Good and Butler, 2001)
		Atheta excellens (Kraatz, 1856)	Name in *Pal. Cat.*
	c	*Bessobia fungivora* (Thomson, 1867)	Down (Anderson, 2011a) See note in text
		Atheta fungivora (Thomson, 1867)	Name in *Pal. Cat.*
		Bessobia monticola (Thomson, 1852)	
		Atheta monticola (Thomson, 1852)	Name in *Pal. Cat.*
	c	*Bessobia occulta* (Erichson, 1837)	See note in text
		Atheta occulta (Erichson, 1837)	Name in *Pal. Cat.*
69		*Boreophilia eremita* (Rye, 1866)	*B. hercynica* in Tronquet (2014)
		Atheta eremita (Rye, 1866)	
		Atheta islandica sensu auctt.	
70		*Brundinia marina* (Mulsant & Rey, 1853)	
	+	*Brundinia meridionalis* (Mulsant & Rey, 1853)	Clare, Galway (Good and Butler, 1998)
		[*Cadaverota cadaverina* (Brisout de Barneville, 1860)	See *Dimetrota cadaverina*]
71		*Callicerus obscurus* Gravenhorst, 1802	

	Callicerus rigidicornis (Erichson, 1839)	
72	*Ceritaxa subterranea* (Mulsant & Rey, 1853)	See note in text
	Atheta subterranea (Mulsant & Rey, 1853)	Name in *Pal. Cat.*
	Neohilara subterranea (Mulsant & Rey, 1853)	
	Ceritaxa testaceipes (Heer, 1839)	
	Atheta testaceipes (Heer, 1839)	Name in *Pal. Cat.*
73	*Chaetida longicornis* (Gravenhorst, 1802)	
	Atheta longicornis (Gravenhorst, 1802)	Name in *Pal. Cat.*
74	*Dadobia immersa* (Erichson, 1837)	
75	*Dalotia coriaria* (Kraatz, 1856)	Syn. of *Dimetrota* in *Pal. Cat.*
	Atheta coriaria (Kraatz, 1856)	Name in *Pal. Cat.*
	Dimetrota coriaria (Kraatz, 1856)	
76	*Datomicra canescens* (Sharp, 1869)	
	Atheta canescens (Sharp, 1869)	Name in *Pal. Cat.*
	Datomicra celata (Erichson, 1837)	
	Atheta celata (Erichson, 1837)	Name in *Pal. Cat.*
	Datomicra nigra (Kraatz, 1856)	
	Atheta nigra (Kraatz, 1856)	Name in *Pal. Cat.*
	Datomicra sordidula (Erichson, 1837)	
	Atheta sordidula (Erichson, 1837)	Name in *Pal. Cat.*
	Datomicra zosterae (Thomson, 1856)	
	Atheta zosterae (Thomson, 1856)	Name in *Pal. Cat.*
77	*Dilacra luteipes* (Erichson, 1837)	Oxypodini in *Pal. Cat*., but subgenus of *Atheta* in Tronquet (2014)
	Dilacra vilis (Erichson, 1837)	Oxypodini in *Pal. Cat*., but subgenus of *Atheta* in Tronquet (2014)
78	*Dimetrota aeneipennis* (Thomson, 1856)	
	Atheta aeneipennis (Thomson, 1856)	Name in *Pal. Cat*
	Dimetrota atramentaria (Gyllenhal, 1810)	
	Atheta atramentaria (Gyllenhal, 1810)	Name in *Pal. Cat*
	Dimetrota cadaverina (Brisout de Barneville, 1860)	
	Cadaverota cadaverina (Brisout de Barneville, 1860)	Name in Lott (2008)
	Atheta cadaverina (Brisout de Barneville, 1860)	Name in *Pal. Cat.*
	[*Dimetrota cauta* (Erichson, 1837)	See *Badura cauta*]
	Dimetrota cinnamoptera (Thomson, 1856)	
	Atheta cinnamoptera (Thomson, 1856)	Name in *Pal. Cat*
	[*Dimetrota ischnocera* Thomson, 1870	See *Badura ischnocera*]
	Dimetrota intermedia (Thomson, 1852)	
	Atheta intermedia (Thomson, 1852)	Name in *Pal. Cat*

	Dimetrota laevana (Mulsant & Rey, 1852)	
	Atheta laevana (Mulsant & Rey, 1852)	Name in *Pal. Cat*
	Dimetrota marcida (Erichson, 1837)	
	Atheta marcida (Erichson, 1837)	Name in *Pal. Cat*
	Dimetrota nigripes (Thomson, 1856)	
	Atheta nigripes (Thomson, 1856)	Name in *Pal. Cat*
	Dimetrota setigera (Sharp, 1869)	
	Atheta setigera (Sharp, 1869)	Name in *Pal. Cat*
	Dimetrota subtilis (Scriba, 1866)	See note on *M. subtilis* in text
	Microdota subtilis (Scriba, 1866)	Name in Tronquet (2014)
	Atheta subtilis (Scriba, 1866)	Name in *Pal. Cat*
79	*Dinaraea aequata* (Erichson, 1837)	
	Dinaraea angustula (Gyllenhal, 1810)	
	Dinaraea linearis (Gravenhorst, 1802)	
80	*Dochmonota clancula* (Erichson, 1837)	
81	*Enalodroma hepatica* (Erichson, 1839)	
82	*Geostiba circellaris* (Gravenhorst, 1806)	
83	*Halobrecta algae* (Hardy, 1851)	Oxypodini in *Pal. Cat*.
+	*Halobrecta algophila* (Fenyes, 1909)	Down (Telfer, 2009) Oxypodini in *Pal. Cat*.
	Halobrecta flavipes Thomson, 1861	Oxypodini in *Pal. Cat*.
84	*Hydrosmecta delicatula* (Sharp, 1869)	
	Hydrosmecta eximia (Sharp, 1869)	
	Hydrosmecta fragilis (Kraatz, 1854)	
	Hydrosmecta longula (Heer, 1839)	
	Hydrosmecta thinobioides (Kraatz, 1854)	
	Hydrosmecta subtilissima (Kraatz, 1854)	
	Hydrosmecta septentrionum (Benick, 1969)	
85	*Liogluta alpestris* (Heer, 1839)	
	Liogluta nitidiuscula (Sharp, 1869)	
	Liogluta nitidula (Kraatz, 1856)	
	Liogluta longiuscula (Gravenhorst, 1802)	
	Liogluta microptera Thomson, 1867	
	Liogluta oblongiuscula sensu auctt.	
	Liogluta pagana (Erichson, 1839)	
86 +	*Lyprocorrhe anceps* (Erichson, 1837)	Galway, Kerry, Tipperary (Breen, 2014) Not listed as Irish in *Pal. Cat*.
87	*Microdota amicula* (Stephens, 1832)	
	Atheta amicula (Stephens, 1832)	Name in *Pal. Cat.*

		Microdota atricolor (Sharp, 1869)	
		Atheta atricolor (Sharp, 1869)	Name in *Pal. Cat.*
		Microdota benickiella (Brundin, 1948)	
		Atheta benickiella Brundin, 1948	Name in *Pal. Cat.*
	+	*Microdota boreella* (Brundin, 1948)	Londonderry/Derry (Anderson, 2012c)
		Atheta boreella Brundin, 1948	Name in *Pal. Cat.*
		Microdota indubia (Sharp, 1869)	
		Atheta indubia (Sharp, 1869)	Name in *Pal. Cat.*
		Microdota liliputana (Brisout de Barneville, 1860)	
		Atheta liliputana (Brisout de Barneville, 1860)	Name in *Pal. Cat.*
		[*Microdota subtilis* (Scriba, 1866)	See *Dimetrota subtilis*]
88		*Mocyta amplicollis* (Mulsant & Rey, 1873)	
		Atheta amplicollis (Mulsant & Rey, 1874)	Name in *Pal. Cat.*
		Mocyta clientula (Erichson, 1839)	
		Atheta clientula (Erichson, 1839)	Name in *Pal. Cat.*
		Mocyta fungi (Gravenhorst, 1806)	
		Atheta fungi (Gravenhorst, 1806)	Name in *Pal. Cat.*
		Mocyta orbata (Erichson, 1837)	
		Atheta orbata (Erichson, 1837)	Name in *Pal. Cat.*
89		*Mycetota laticollis* (Stephens, 1832)	
		Atheta laticollis (Stephens, 1832)	Name in *Pal. Cat.*
90		*Nehemitropia lividipennis* (Mannerheim, 1830)	
		Nehemitropia sordida (Marsham, 1802)	
		[*Neohilara subterranea* (Mulsant & Rey, 1853)	See *Ceritaxa subterranea*]
91		*Notothecta flavipes* (Gravenhorst, 1806)	
		Atheta flavipes (Gravenhorst, 1806)	Name in *Pal. Cat.*
92	+	*Oreostiba subglabra* (Sharp, 1869)	Armagh (Bryan and Anderson, 2013)
		Alaobia subglabra (Sharp, 1869)	
		Atheta subglabra (Sharp, 1869)	Name in *Pal. Cat.*
		Oreostiba tibialis (Heer, 1839)	
		Atheta tibialis (Heer, 1839)	Name in *Pal. Cat.*
93		*Pachnida nigella* (Erichson, 1837)	
94		*Pachyatheta mortuorum* (Thomson, 1867)	
		Atheta mortuorum Thomson, 1867	Name in *Pal. Cat.*
95	+	*Parameotica difficilis* (Brisout de Barneville, 1860)	Galway (Good and Butler, 2001).
		Atheta difficilis (Brisout, 1860)	Name in *Pal. Cat.*
96		*Philhygra arctica* (Thomson, 1856)	
		Atheta arctica (Thomson, 1856)	Name in *Pal. Cat.*
		Philhygra debilis (Erichson, 1837)	

	Atheta debilis (Erichson, 1837)	Name in *Pal. Cat.*
	Philhygra elongatula (Gravenhorst, 1802)	
	Atheta elongatula (Gravenhorst, 1802)	Name in *Pal. Cat.*
+	*Philhygra fallaciosa* (Sharp, 1869)	Down (Anderson, 2000)
	Atheta fallaciosa (Sharp, 1869)	Name in *Pal. Cat.*
	Philhygra gyllenhalii (Thomson, 1856)	
	Atheta gyllenhalii (Thomson, 1856)	Name in *Pal. Cat.*
	Philhygra hygrobia (Thomson, 1856)	
	Atheta hygrobia (Thomson, 1856)	Name in *Pal. Cat.*
	Philhygra hygrotopora (Kraatz, 1856)	
	Atheta hygrotopora (Kraatz, 1856)	Name in *Pal. Cat.*
	Philhygra luridipennis (Mannerheim, 1830)	
	Atheta luridipennis (Mannerheim, 1830)	Name in *Pal. Cat.*
	Philhygra malleus (Joy, 1913)	
	Atheta malleus Joy, 1913	Name in *Pal. Cat.*
	Philhygra melanocera (Thomson, 1856)	
	Atheta melanocera (Thomson, 1856)	Name in *Pal. Cat.*
	Philhygra obtusangula (Joy, 1913)	
	Atheta obtusangula Joy, 1913	Name in *Pal. Cat.*
	Philhygra palustris (Kiesenwetter, 1844)	
	Atheta palustris (Kiesenwetter, 1844)	Name in *Pal. Cat.*
	Philhygra terminalis (Gravenhorst, 1806)	
	Atheta terminalis (Gravenhorst, 1806)	Name in *Pal. Cat.*
	Philhygra volans (Scriba, 1859)	
	Atheta volans (Scriba, 1859)	Name in *Pal. Cat.*
97	*Plataraea brunnea* (Fabricius, 1798)	
	Atheta brunnea (Fabricius, 1798)	
98	+ *Schistoglossa aubei* (Brisout de Barneville, 1860)	Down (Sinclair and Owen, 1998)
	+ *Schistoglossa curtipennis* (Sharp, 1869)	Antrim (Telfer, 2009) See note in text
	Schistoglossa gemina (Erichson, 1837)	
99	*Tetropla nigritula* (Gravenhorst, 1802)	
	Atheta nigritula (Gravenhorst, 1802)	Name in *Pal. Cat*.
100	*Thamiaraea hospita* (Märkel, 1844)	
101	*Thinobaena vestita* (Gravenhorst, 1806)	
	Atheta vestita (Gravenhorst, 1806)	Name in *Pal. Cat.*
102	*Traumoecia picipes* (Thomson, 1856)	See note on *A. olbrichi* in text
	Atheta picipes (Thomson, 1856)	Name in *Pal. Cat.*
	+ *Traumoecia taxiceroides* (Munster, 1932)	Tyrone (Bryan and Anderson, 2014b)

		See note in text
103	+ *Trichiusa immigrata* Lohse, 1984	Down (Anderson and Bryan, 2012b)

ALEOCHARINAE: AUTALIINI

104	*Autalia impressa* (Olivier, 1795)	
	+ *Autalia longicornis* Scheerpeltz, 1947	Antrim (Anderson, 2009)
	+ *Autalia puncticollis* Sharp, 1864	Antrim (Anderson, 2010a)
	Autalia rivularis (Gravenhorst, 1802)	

ALEOCHARINAE: DIGLOTTINI

105	*Diglotta mersa* (Haliday, 1837)	
	Diglotta submarina (Fairmaire & Laboulbène, 1856)	
	c *Diglotta sinuaticollis* (Mulsant & Rey, 1871)	Cork, Donegal, Kerry, Waterford (Good, 1998)
	Diglotta mersa sensu Lohse (1985) non (Haliday, 1837)	

ALEOCHARINAE: FALAGRIINI

106	*Cordalia obscura* (Gravenhorst, 1802)	
107	*Falagria caesa* Erichson, 1837	
108	*Falagrioma thoracica* (Stephens, 1832)	
	Falagria thoracica (Stephens, 1832)	
109	*Myrmecopora brevipes* Butler, 1909	See note in text
	Myrmecopora oweni Assing, 1997	
	Myrmecopora sulcata (Kiesenwetter, 1850)	
	Myrmecopora uvida (Erichson, 1840)	

ALEOCHARINAE: GYMNUSINI

110	*Gymnusa brevicollis* (Paykull, 1800)	
	Gymnusa variegata Kiesenwetter, 1845	

ALEOCHARINAE: HOMALOTINI

111	*Agaricochara latissima* (Stephens, 1832)	
112	*Anomognathus cuspidatus* (Erichson, 1839)	Not listed as Irish in *Pal. Cat.*
113	*Bolitochara tecta* Assing, 2014	See note in text
	Bolitochara lucida sensu auctt. nec (Gravenhorst, 1802)	
	Bolitochara obliqua Erichson, 1837	
114	*Encephalus complicans* Stephens, 1832	
115	*Gyrophaena affinis* Mannerheim, 1830	
	Gyrophaena bihamata Thomson, 1867	

	+ *Gyrophaena congrua* Erichson, 1837	Armagh (Bryan and Anderson, 2014a)
	Gyrophaena fasciata (Marsham, 1802)	
	Gyrophaena gentilis Erichson, 1839	
	+ *Gyrophaena hanseni* Strand, 1946	Roscommon (Good, 2002)
	Gyrophaena joyi Wendeler, 1924	
	+ *Gyrophaena manca* Erichson, 1839	Galway (Good, 1997)
	Gyrophaena angustata (Stephens, 1832)	
	Gyrophaena minima Erichson, 1837	
	+ *Gyrophaena munsteri* Strand, 1935	Armagh (Bryan and Anderson, 2013)
	Gyrophaena nana (Paykull, 1800)	
	Gyrophaena poweri Crotch, 1867	
	Gyrophaena pulchella Heer, 1839	
	Gyrophaena strictula Erichson, 1839	
116	*Heterota plumbea* (Waterhouse, 1858)	
117	*Homalota plana* (Gyllenhal, 1810)	
118	*Leptusa fumida* (Erichson, 1839)	
	+ *Leptusa norvegica* Strand, 1941	Antrim (Anderson and Clawson, 2004)
	Leptusa pulchella (Mannerheim, 1830)	
	+ *Leptusa ruficollis* (Erichson, 1839)	Down (Anderson, 2010b)

ALEOCHARINAE: HYGRONOMINI

119	*Hygronoma dimidiata* (Gravenhorst, 1806)	

ALEOCHARINAE: HYPOCYPHTINI

120	*Cypha laeviuscula* (Mannerheim, 1830)	
	Cypha longicornis (Paykull, 1800)	
	+ *Cypha pulicaria* (Erichson, 1839)	Fermanagh (Bryan and Anderson, 2014e)
	Cypha punctum (Motschulsky, 1858)	
	Cypha seminulum (Erichson, 1839)	
	Cypha hanseni (Palm, 1949)	
	+ *Cypha tarsalis* (Luze, 1902)	Offaly (Good, 2004)
121	*Oligota apicata* (Erichson, 1837)	
	Holobus apicatus (Erichson, 1837)	See Lott (2008a: Note 300)
	Oligota granaria Erichson, 1837	
	Oligota inflata (Mannerheim, 1830)	
	Oligota parva Kraatz, 1862	
	Oligota pumilio Kiesenwetter, 1858	
	Oligota punctulata Heer, 1839	

Oligota pusillima (Gravenhorst, 1806)

ALEOCHARINAE: LOMECHUSINI

122 *Drusilla canaliculata* (Fabricius, 1787)

123 *Pella limbata* (Paykull, 1789)
Zyras limbata (Paykull, 1789)

124 *Zyras collaris* (Paykull, 1800)
Zyras collaris (Märkel, 1842) sensu Lott (2008a)

ALEOCHARINAE: MYLLAENINI

125 *Myllaena brevicornis* (Matthews, 1838)
Myllaena dubia (Gravenhorst, 1806)
Myllaena gracilis (Matthews, 1838)
Myllaena infuscata Kraatz, 1853
Myllaena intermedia Erichson, 1837
Myllaena kraatzi Sharp, 1871
Myllaena minuta (Gravenhorst, 1806)

ALEOCHARINAE: OXYPODINI

126 + *Amarochara umbrosa* (Erichson, 1837) Kerry (Good and O'Connor, 2010)
Listed under Aleocharini in *Pal. Cat.*

127 *Calodera aethiops* (Gravenhorst, 1802)
Calodera nigrita Mannerheim, 1830
Calodera protensa Mannerheim, 1830
Calodera riparia Erichson, 1837

128 *Cousya longitarsis* (Thomson, 1867)
Ocyusa hibernica (Rye, 1876)
Chilomorpha longitarsis (Thomson, 1867)
[Not to be confused with *Tetralaucopora* (= *Parocyusa*) *longitarsis* (Erichson, 1839)]

129 *Crataraea suturalis* (Mannerheim, 1830) Not listed as Irish in *Pal. Cat.*

130 *Dacrila fallax* (Kraatz, 1856)

131 *Gnypeta caerulea* (Sahlberg, 1830)
Gnypeta carbonaria (Mannerheim, 1830)

132 *Haploglossa nidicola* (Fairmaire, 1853)
Haploglossa villosula (Stephens, 1832)
Haploglossa pulla sensu auctt.

133 *Hygropora cunctans* (Erichson, 1837)

134 *Ilyobates nigricollis* (Paykull, 1800)

135 *Ischnoglossa prolixa* (Gravenhorst, 1802)

136	*Ischnopoda leucopus* (Marsham, 1802)	
	Ischnopoda umbratica (Erichson, 1837)	Not listed as Irish in *Pal. Cat.*
137	*Meotica exilis* (Gravenhorst, 1806)	
c	*Meotica exillima* Sharp, 1915	Armagh (Bryan and Anderson, 2014c)
	Meotica filiformis (Motschulsky, 1860)	
	Meotica apicalis G. Benick, 1953	
138	*Mniusa incrassata* (Mulsant & Rey, 1852)	
139	*Ocalea latipennis* Sharp, 1870	
	Ocalea picata (Stephens, 1832)	
+	*Ocalea rivularis* Miller, 1852	Sligo (Good, 1999)
140	*Ocyusa maura* (Erichson, 1837)	
	Ocyusa picina (Aubé, 1850)	
	Deubelia picina (Aubé, 1850)	
141	*Oxypoda acuminata* (Stephens, 1832)	Not listed as Irish in *Pal. Cat.*
	Oxypoda lividipennis sensu auctt.	
	Oxypoda alternans (Gravenhorst, 1802)	
	Oxypoda annularis (Mannerheim, 1830)	
	Oxypoda brachyptera (Stephens, 1832)	
	Oxypoda brevicornis (Stephens, 1832)	Not listed as Irish in *Pal. Cat.*
	Oxypoda umbrata sensu auctt.	
	Oxypoda carbonaria (Heer, 1841)	
	Oxypoda sericea Heer, 1839	
	Oxypoda elongatula Aubé, 1850	
	Oxypoda exoleta Erichson, 1839	
	Oxypoda flavicornis Kraatz, 1856	
	Oxypoda formiceticola Märkel, 1841	Not listed as Irish in *Pal. Cat.*
	Oxypoda haemorrhoa (Mannerheim, 1830)	
	Oxypoda induta Mulsant & Rey, 1861	Not listed as Irish in *Pal. Cat.*
	Oxypoda lentula Erichson, 1837	
	Oxypoda lurida Wollaston, 1857	
+	*Oxypoda nigricornis* Motschulsky, 1890	Antrim (Anderson, 2010a)
	Oxypoda opaca (Gravenhorst, 1802)	
	Oxypoda procerula Mannerheim, 1830	
	Oxypoda tirolensis Gredler, 1863	
	Oxypoda vittata Märkel, 1842	
142	*Phloeopora testacea* (Mannerheim, 1830)	
143	*Tachyusa constricta* Erichson, 1837	
	Ischnopoda constricta (Erichson, 1837)	
144	*Tetralaucopora longitarsis* (Erichson, 1839)	

Parocyusa longitarsis (Erichson, 1839)
[Not to be confused with *Cousya* (= *Ocyusa*) *longitarsis* (Thomson, 1867)]

145 *Thiasophila angulata* (Erichson, 1837)

146 *Thinonoma atra* (Gravenhorst, 1806)
Ischnopoda atra (Gravenhorst, 1806)

ALEOCHARINAE: PHYTOSINI

147 *Phytosus balticus* Kraatz, 1859

c *Phytosus nigriventris* (Chevrolat, 1843) — See note in text
Phytosus spinifer Curtis, 1838

SCAPHIDIINAE

148 *Scaphisoma agaricinum* (Linnaeus, 1758)
Scaphisoma boleti (Panzer, 1793)

PIESTINAE

149 *Siagonum quadricorne* Kirby, 1815

OXYTELINAE

150 *Anotylus complanatus* (Erichson, 1839)
Anotylus insecatus (Gravenhorst, 1806)
Anotylus inustus (Gravenhorst, 1806)
Anotylus maritimus Thomson, 1861
Anotylus nitidulus (Gravenhorst, 1802)
Anotylus rugosus (Fabricius, 1775)
Anotylus sculpturatus (Gravenhorst, 1806)
Anotylus tetracarinatus (Block, 1799)

151 *Aploderus caelatus* (Gravenhorst, 1802)

152 *Bledius atricapillus* (Germar, 1825) — See note in text
Bledius praetermissus sensu auctt. partim
Bledius erraticus Erichson, 1839

\+ *Bledius femoralis* (Gyllenhal, 1827) — Kerry (Owen, 2001)
Bledius fergussoni Joy, 1912

c *Bledius frisius* Lohse, 1978 — Confirmed by Telfer (2009)
Bledius spectabilis sensu auctt. — See note in text
Bledius furcatus (Olivier, 1811)
Bledius fuscipes Rye, 1865
Bledius gallicus (Gravenhorst, 1806)
[*Bledius limicola* Tottenham, 1940] — Synonym of *B. spectabilis*

		Bledius longulus Erichson, 1839	
	+	*Bledius occidentalis* Bondroit, 1907	Roscommon (Regan and Anderson, 2004); Not listed as Irish in *Pal. Cat.*
		Bledius opacus (Block, 1799)	
	+	*Bledius pallipes* (Gravenhorst, 1806)	Derry/Londonderry, Tipperary (Lott, 2008b)
		Bledius annae sensu Pope (1977) partim? non Sharp, 1911	See note in text
		[*Bledius praetermissus* Williams, 1929]	Synonym of *B. atricapillus*
		Bledius spectabilis Kraatz, 1857	See note in text
		Bledius limicola Tottenham, 1940	
		Bledius germanicus Wagner, 1935	
		Bledius subniger Schneider, 1898	
		Bledius subterraneus Erichson, 1839	
		Bledius unicornis (Germar, 1825)	
153	c	*Carpelimus bilineatus* Stephens, 1834	Confirmed by Anderson (2011)
		Carpelimus corticinus (Gravenhorst, 1806)	
		Carpelimus elongatulus (Erichson, 1839)	
		Carpelimus fuliginosus (Gravenhorst, 1802)	
		Carpelimus gracilis (Mannerheim, 1830)	
	+	*Carpelimus halophilus* (Kiesenwetter, 1844)	Cork (Good and Smiddy, 2006).
		Carpelimus impressus (Lacordaire, 1835)	
	+	*Carpelimus incongruus* Steel, 1969	Anderson in Lott (2009a)
	+	*Carpelimus manchuricus* (Bernhauer, 1938)	Clare, Galway (Good and Butler, 2001)
		Carpelimus subtilicornis (Roubal, 1946)	Not listed as Irish in *Pal. Cat.*
		Carpelimus obesus (Kiesenwetter, 1844)	
		Carpelimus pusillus (Gravenhorst, 1802)	See note in text
	c	*Carpelimus rivularis* (Motschulsky, 1860)	Confirmed by Lott (2011)
	+	*Carpelimus similis* Smetana, 1967	Clare (Regan and Anderson, 2004); confirmed by Lott (2011) Not listed as Irish in *Pal. Cat.*
	+	*Carpelimus zealandicus* (Sharp, 1900)	Londonderry/Derry (Anderson, 2013b)
154		*Coprophilus striatulus* (Fabricius, 1792)	
155		*Deleaster dichrous* (Gravenhorst, 1802)	
156	+	*Ochthephilus andalusiacus* (Fagel, 1957)	Tipperary (Good, 2016b) Not listed as Irish in *Pal. Cat.*
		Ochthephilus aureus (Fauvel, 1871)	
		Ochthephilus omalinus (Erichson, 1840)	
157		*Oxytelus laqueatus* (Marsham, 1802)	
		Oxytelus sculptus Gravenhorst, 1806	

158		*Platystethus arenarius* (Geoffroy, 1785)	
		Platystethus cornutus (Gravenhorst, 1802)	Antrim, Kerry (Anderson, 2007) See note on *P. degener* in text
		Platystethus nodifrons Mannerheim, 1830	
159		*Syntomium aeneum* (Müller, 1821)	
160		*Thinobius bicolor* Joy, 1911	
		Thinobius crinifer Smetana, 1959	See note in text
		Thinobius longipennis sensu auctt. partim non (Heer, 1841)	
161		*Thinodromus arcuatus* (Stephens, 1834)	

STENINAE

162		*Dianous coerulescens* (Gyllenhal, 1810)	
163	c	*Stenus aceris* Stephens, 1833	See note in text
		Stenus argus Gravenhorst, 1806	
	+	*Stenus assequens* Rey, 1844	Sligo (Bryan and Anderson, 2014d)
	+	*Stenus atratulus* Erichson, 1839	Derry/Londonderry (Telfer, 2009)
		Stenus bifoveolatus Gyllenhal, 1827	
		Stenus bimaculatus Gyllenhal, 1810	
		Stenus binotatus Lungh, 1804	
		Stenus boops Ljungh, 1810	
		Stenus brevipennis Thomson, 1851	See note in text
		Stenus brunnipes Stephens, 1833	
		Stenus canaliculatus Gyllenhal, 1827	
		Stenus carbonarius Gyllenhal, 1827	
		Stenus cicindeloides (Schaller, 1783)	
		Stenus clavicornis (Scopoli, 1763)	
		Stenus crassus Stephens, 1833	
		Stenus europaeus Puthz, 1966	
		Stenus flavipes Stephens, 1833	
		Stenus formicetorum Mannerheim, 1843	
		Stenus fornicatus Stephens, 1833	
		Stenus fulvicornis Stephens, 1833	
		Stenus fuscipes Gravenhorst, 1802	
		Stenus geniculatus Gravenhorst, 1806	
		Stenus glabellus Thomson, 1870	
		Stenus glacialis Heer, 1839	
		Stenus guttula Müller, 1821	
		Stenus guynemeri Jacquelin du Val, 1850	
		Stenus impressus Germar, 1824	

	Stenus incanus Erichson, 1839	
	Stenus incrassatus Erichson, 1839	
	Stenus juno (Paykull, 1789)	
	Stenus kiesenwetteri Rosenhauer, 1856	
	Stenus latifrons Erichson, 1839	
	Stenus lustrator Erichson, 1839	
	Stenus melanarius Stephens, 1833	
	Stenus melanopus (Marsham, 1802)	
	Stenus nanus Stephens, 1833	
	Stenus nigritulus Gyllenhal, 1827	
	Stenus nitens Stephens, 1833	
	Stenus nitidiusculus Stephens, 1833	
	Stenus opticus Gravenhorst, 1806	
	Stenus ossium Stephens, 1833	
	Stenus pallitarsis Stephens, 1833	
	Stenus palposus Zetterstedt, 1838	Regionally extinct (Ireland) See note in text
	Stenus palustris Erichson, 1839	
	Stenus picipennis Erichson, 1840	
	Stenus picipes Stephens, 1833	
	Stenus providus Erichson, 1839	
	Stenus pubescens Stephens, 1833	
	Stenus pusillus Stephens, 1833	
	Stenus exiguus Erichson, 1840	
	Stenus similis (Herbst, 1784)	
+	*Stenus solutus* Erichson, 1840	Tipperary (Regan and Anderson, 2004) and six other counties (Anderson)
	Stenus tarsalis Ljungh, 1810	
	Stenus umbratilis (Casey, 1884)	

EUAESTHETINAE

164	*Euaesthetus bipunctatus* (Ljungh, 1804)	
	Euaesthetus laeviusculus Mannerheim, 1844	
	Euaesthetus ruficapillus Lacordaire, 1835	

SCYDMAENINAE

165	*Cephennium gallicum* Ganglbauer, 1899	
166	*Euconnus fimetarius* (Chaudoir, 1845)	
	Euconnus hirticollis (Illiger, 1798)	

		[*Eutheia plicata* (Gyllenhal, 1813)]	See *E. schaumii*
167		*Eutheia schaumii* Kiesenwetter, 1858	See note in text
	+	*Eutheia scydmaenoides* Stephens, 1830	Fermanagh (Anderson, 2011b)
168		*Neuraphes angulatus* (Müller & Künze, 1822)	
		Neuraphes elongatus (Müller & Künze, 1822)	
		Neuraphes talparum Lokay, 1920	
169		*Scydmaenus tarsatus* Müller & Künze, 1822	
170		*Scydmoraphes sparshalli* (Denny, 1825)	
171	c	*Stenichnus bicolor* (Denny, 1825)	Confirmed by Alexander (2013)
		Stenichnus collaris (Müller & Künze, 1822)	
		Stenichnus poweri (Fowler, 1884)	
		Stenichnus pusillus (Müller & Künze, 1822)	

PSEUDOPSINAE

172		*Pseudopsis sulcata* Newman, 1834	

PAEDERINAE

173		*Astenus lyonessius* (Joy, 1908)	
174		*Lathrobium angusticolle* Lacordaire, 1835	Listed as *Platydomene* in *Pal. Cat.*
		Lathrobium brunnipes (Fabricius, 1792)	
		Lathrobium elongatum (Linnaeus, 1767)	
		Lathrobium fovulum Stephens, 1833	
		Lathrobium fulvipenne (Gravenhorst, 1806)	
		Lathrobium geminum Kraatz, 1857	
		Lathrobium boreale Hochhuth, 1851	
		Lathrobium impressum Heer, 1841	
		Lathrobium longulum Gravenhorst, 1802	
		Lathrobium pallidipenne Hochhuth, 1851	
		Lathrobium ripicola Czwalina, 1888	
		Lathrobium quadratum (Paykull, 1789)	Listed as *Tetartopeus* in *Pal. Cat.*
	+	*Lathrobium rufipenne* Gyllenhal, 1813	Mayo (Lott, 2003)
		Lathrobium terminatum Gravenhorst, 1802	Listed as *Tetartopeus* in *Pal. Cat.*
175		*Lithocharis nigriceps* Kraatz, 1859	
		Lithocharis ochracea (Gravenhorst, 1802)	
176		*Lobrathium multipunctum* Gravenhorst, 1802	
		Lathrobium multipunctum (Gravenhorst, 1802)	
177	+	*Medon apicalis* (Kraatz, 1857)	Wexford (McCormack, 2010)
		Medon ripicola (Kraatz, 1854)	
178		*Ochthephilum fracticorne* (Paykull, 1800)	

179	*Paederus caligatus* Erichson, 1840	
	Paederus fuscipes Curtis, 1826	
	Paederus riparius (Linnaeus, 1758)	
180	*Pseudomedon obsoletus* (Nordmann, 1837)	
181	*Rugilus erichsoni* (Fauvel, 1867)	
	Rugilus geniculatus (Erichson, 1839)	
	Rugilus orbiculatus (Paykull, 1789)	
	Rugilus rufipes Germar, 1836	
	Rugilus similis (Erichson, 1839)	
182	*Scopaeus gracilis* (Sperk, 1835)	
	Scopaeus sulcicollis (Stephens, 1833)	
183	*Sunius melanocephalus* (Fabricius, 1792)	
	Sunius propinquus (Brisout de Barneville, 1867)	

STAPHYLININAE

184	*Atrecus affinis* (Paykull, 1789)	
185	*Bisnius cephalotes* (Gravenhorst, 1802)	
	Philonthus cephalotes (Gravenhorst, 1802)	
	Bisnius fimetarius (Gravenhorst, 1802)	
	Philonthus fimetarius (Gravenhorst, 1802)	
	Bisnius nigriventris Thomson, 1867	
	Philonthus nigriventris (Thomson, 1867)	
+	*Bisnius parcus* (Sharp, 1874)	Antrim, Fermanagh, Tyrone (Anderson and Bryan, 2014)
	Bisnius puella (Nordmann, 1837)	
	Philonthus puella Nordmann, 1837	
	Bisnius sordidus (Gravenhorst, 1802)	
	Philonthus sordidus (Gravenhorst, 1802)	
+	*Bisnius subuliformis* (Gravenhorst, 1802)	Armagh (Anderson and Bryan, 2013)
186	*Cafius fucicola* Curtis, 1830	
	Cafius xantholoma (Gravenhorst, 1806)	
187	*Creophilus maxillosus* (Linnaeus, 1758)	
188	*Dinothenarus pubescens* (DeGeer, 1774)	
	Platydracus pubescens (DeGeer, 1774)	
189	*Erichsonius cinerascens* (Gravenhorst, 1802)	Not listed as Irish in *Pal. Cat.*
+	*Erichsonius signaticornis* (Mulsant & Rey)	Down (Bryan and Anderson, 2016)
190	*Gabrius appendiculatus* Sharp, 1910	
	Gabrius subnigritulus sensu auctt.	
	Gabrius bishopi Sharp, 1910	

	Gabrius breviventer (Sperk, 1835)	
	Gabrius coxalus (Hochhuth, 1872)	
	Gabrius pennatus Sharp, 1910	
	Gabrius keysianus Sharp, 1910	
	Gabrius nigritulus (Gravenhorst, 1802)	
	Gabrius osseticus (Kolenati, 1846)	
	Gabrius piliger Mulsant & Rey, 1876	
+	*Gabrius sexualis* Smetana, 1954	Kerry (Schilhammer, 2009) See note in text
	Gabrius splendidulus (Gravenhorst, 1802)	
	Gabrius trossulus (Nordmann, 1837)	
	Gabrius velox Sharp, 1910	Not listed as Irish in *Pal. Cat.* See note in text
191	*Gabronthus thermarum* (Aubé, 1850)	
192	*Gauropterus fulgidus* (Fabricius, 1787)	
193	*Gyrohypnus angustatus* Stephens, 1833	
	Gyrohypnus fracticornis (Müller, 1776)	
	Gyrohypnus punctulatus (Paykull, 1789)	
194	*Heterothops binotatus* (Gravenhorst, 1802)	
	Heterothops minutus Wollaston, 1860	
	Heterothops niger Kraatz, 1868	Conspecific with *H. praevius* in *Pal. Cat.* See note in text
	Heterothops praevius Erichson, 1839	
195	*Leptacinus batychrus* (Gyllenhal, 1827)	
	Leptacinus pusillus (Stephens, 1833)	
196	*Megalinus glabratus* (Gravenhorst, 1802)	
	Xantholinus glabratus (Gravenhorst, 1802)	
197	*Neobisnius lathrobioides* (Baudi di Selve, 1848)	Not listed as Irish in *Pal. Cat.*
	Neobisnius procerulus (Gravenhorst, 1806)	Not listed as Irish in *Pal. Cat.*
	Neobisnius villosulus (Stephens, 1833)	
198	*Ocypus aeneocephalus* (DeGeer, 1774)	
	Ocypus brunnipes (Fabricius, 1781)	
	Ocypus fortunatarum Wollaston, 1871	
	Ocypus nitens (Schrank, 1781)	
	Ocypus nero (Faldermann, 1835)	
	Ocypus olens (Müller, 1764)	Devil's coach-horse (*Dara daol, darbh daol*)
199	*Ontholestes murinus* (Linnaeus, 1758)	

Ontholestes tesselatus (Geoffroy, 1785)
200 *Othius angustus* Stephens, 1833
Othius laeviusculus Stephens, 1833
Othius punctulatus (Goeze, 1777)
Othius subuliformis Stephens, 1833
Othius myrmecophilus Kiesenwetter, 1843
201 *Phacophallus parumpunctatus* (Gyllenhal, 1827)
202 *Philonthus addendus* Sharp, 1867
Philonthus albipes (Gravenhorst, 1802)
Philonthus carbonarius (Gravenhorst, 1802)
Philonthus varius (Gyllenhal, 1810)
Philonthus cognatus Stephens, 1832
Philonthus concinnus (Gravenhorst, 1802)
Philonthus corvinus Erichson, 1839
Philonthus cruentatus (Gmelin, 1790)
Philonthus debilis (Gravenhorst, 1802)
Philonthus decorus (Gravenhorst, 1802)
Philonthus discoideus (Gravenhorst, 1802)
Philonthus ebeninus (Gravenhorst, 1802)
Philonthus fumarius (Gravenhorst, 1806)
Philonthus furcifer Renkonen, 1937
Philonthus intermedius (Lacordaire, 1835)
Philonthus jurgans Tottenham, 1937
Philonthus laminatus (Creutzer, 1799)
Philonthus lepidus (Gravenhorst, 1802)
Philonthus longicornis Stephens, 1832
Philonthus mannerheimi Fauvel, 1869
Philonthus marginatus (Müller, 1764)
Philonthus micans (Gravenhorst, 1802)
Philonthus micantoides Benick & Lohse, 1956
Philonthus nigrita (Gravenhorst, 1806)
Philonthus nitidicollis (Lacordaire, 1835)
Philonthus parvicornis (Gravenhorst, 1802)
Philonthus agilis (Gravenhorst, 1806)
Philonthus politus (Linnaeus, 1758)
Philonthus punctus (Gravenhorst, 1802)
Philonthus quisquiliarius (Gyllenhal, 1810)
Philonthus rectangulus Sharp, 1874
Philonthus rotundicollis (Ménétriés, 1832)

	Philonthus sanguinolentus (Gravenhorst, 1802)	
	Philonthus splendens Fabricius, 1792)	
	Philonthus succicola Thomson, 1860	
	Philonthus tenuicornis Mulsant & Rey, 1853	
	Philonthus umbratilis (Gravenhorst, 1802)	
	Philonthus varians (Paykull, 1789)	
	Philonthus ventralis (Gravenhorst, 1802)	
203	*Quedius auricomus* Kiesenwetter, 1850	
	Quedius boopoides Munster, 1923	
	Quedius boops (Gravenhorst, 1802)	
	Quedius brevicornis (Thomson, 1860)	
	Quedius brevis Erichson, 1840	
	Quedius cinctus (Paykull, 1790)	
	Quedius cruentus (Olivier, 1795)	
	Quedius curtipennis Bernhauer, 1908	
	Quedius fulgidus (Fabricius, 1792)	
	Quedius assimilis (Nordmann, 1837)	
	Quedius fuliginosus (Gravenhorst, 1802)	
	Quedius fulvicollis (Stephens, 1833)	
	Quedius fumatus (Stephens, 1833)	
	Quedius humeralis Stephens, 1832	
	Quedius invreae Gridelli, 1924	
	Quedius ochripennis sensu auctt.	See note in text
	Quedius levicollis (Brullé, 1832)	
	Quedius tristis sensu auctt.	
+	*Quedius lyszkowskii* Lott, 2010	Several counties (Lott, 2010; Alexander, 2011); Not listed as Irish in *Pal. Cat.*
	Quedius maurorufus (Gravenhorst, 1806)	
	Quedius mesomelinus (Marsham, 1802)	
	Quedius molochinus (Gravenhorst, 1806)	Not listed as Irish in *Pal. Cat.*
	Quedius nigriceps Kraatz, 1857	
+	*Quedius nigrocaeruleus* Fauvel, 1874	Armagh (Anderson and Bryan, 2013)
	Quedius nitipennis (Stephens, 1833)	
	Quedius persimilis Mulsant & Rey, 1876	
	Quedius aridulus Jansson, 1939	
	Quedius picipes (Mannerheim, 1830)	
	Quedius plagiatus Mannerheim, 1843	Listed under Tangnathanini in *Pal. Cat.*
	Quedionuchus plagiatus (Mannerheim, 1843)	Name in *Pal. Cat.*

	Quedius puncticollis (Thomson, 1867)	
	Quedius schatzmayri Gridelli, 1922	
	Quedius scintillans (Gravenhorst, 1806)	
	Quedius semiaeneus (Stephens, 1833)	
	Quedius semiobscurus (Marsham, 1802)	
	Quedius simplicifrons Fairmaire, 1862	
	Quedius pallipes sensu auctt.	
	Quedius truncicola Fairmaire & Laboulbène, 1856	
	Quedius ventralis (Aragona, 1830) non (Gravenhorst, 1802).	
	Quedius umbrinus Erichson, 1839	
204	*Remus sericeus* (Holme, 1837)	Not listed as Irish in *Pal. Cat.*
	Cafius sericeus (Holme, 1837)	
205	*Staphylinus dimidiaticornis* Gemminger, 1851	
	Staphylinus erythropterus Linnaeus, 1758	Not listed as Irish in *Pal. Cat.*
206	*Tasgius ater* (Gravenhorst, 1802)	
	Ocypus ater (Gravenhorst, 1802)	
	Tasgius globulifer (Geoffroy, 1785)	
	Ocypus globulifer (Geoffroy, 1785)	
	Tasgius melanarius (Heer, 1839)	
	Ocypus melanarius (Heer, 1839)	
	Tasgius moristans (Rossi, 1790)	
	Ocypus compressus (Marsham, 1802)	
207	*Xantholinus elegans* (Olivier, 1795)	
	Xantholinus jarrigei Coiffait, 1956	
	Xantholinus laevigatus Jacobson, 1849	
	Xantholinus linearis (Olivier, 1795)	
	Xantholinus longiventris Heer, 1839	

APPENDIX 1. Index to genera. Numbers refer to genera in the check-list in sequence. Synonyms are also listed for a genus which has changed to a different genus since Anderson, Nash and O'Connor (1997). syn = synonym.

Acidota 1
Acrolocha 2
Acrotona 57
Acrulia 3
Adota 58
Agaricochara 111
Alaobia 59
Aleochara 55
Alevonota 60
Alianta 61
Aloconota 62
Amarochara 126
Amidobia 63
Amischa 64
Anomognathus 112
Anopleta 65
Anotylus 150
Anthobium 4
Anthophagus 5
Aploderus 151
Arpedium 9
Arrhenopeplus 27
Astenus 173
Atheta 66
Atheta (syn.) 59, 63, 65, 67, 68, 69, 72, 73, 75, 76, 78, 87, 88, 89, 91, 92, 95, 96, 97, 99, 101, 102
Atrecus 184
Autalia 104
Badura 67
Bessobia 68
Bibloplectus 29
Bibloporus 30
Bisnius 185
Bledius 152
Bolitobius 43
Bolitobius (syn.) 49
Bolitochara 113
Boreophilia 69
Brachygluta 31
Brachygluta (syn.) 35
Brundinia 70
Bryaxis 32
Bythinus 33
Cadaverota (syn) 78
Cafius 186
Cafius (syn.) 204
Callicerus 71
Calodera 127
Carpelimus 153
Cephennium 165
Ceritaxa 72
Chaetida 73
Chilomorpha (syn.) 128
Cilea 44
Claviger 34
Coprophilus 154
Cordalia 106
Coryphium 6
Cousya 128
Crataraea 129
Creophilus 187
Cypha 120
Dacrila 130
Dadobia 74
Dalotia 75
Datomicra 76
Deleaster 155
Deliphrum 7
Deubelia (syn.) 140
Dianous 162
Diglotta 105
Dilacra 77
Dimetrota 78
Dinaraea 79
Dinothenarus 188
Disopora (syn) 62
Dochmonota 80
Dropephylla 8
Drusilla 122
Emplenota (syn) 55
Enalodroma 81
Encephalus 114
Erichsonius 189
Euaesthetus 164
Eucnecosum (syn.) 9
Euconnus 166
Euplectus 35
Eusphalerum 10
Eutheia 167
Fagniezia 36
Falagria 107
Falagria (syn.) 108
Falagrioma 108
Gabrius 190
Gabronthus 191
Gauropterus 192
Geodromicus 11
Geostiba 82
Gnypeta 131
Gymnusa 110
Gyrohypnus 193
Gyrophaena 115
Halobrecta 83
Hapalaraea 12
Habrocerus 54
Haploglossa 132

Heterota 116
Heterothops 194
Holobus (syn.) 121
Homalota 117
Hydrosmecta 84
Hygronoma 119
Hygropora 133
Ilyobates 134
Ischnoglossa 135
Ischnopoda 141
Ischnopoda (syn.) 144, 146
Ischnosoma 45
Lamprinodes 46
Lathrobium 174
Lathrobium (syn.) 176
Leptacinus 195
Leptusa 118
Lesteva 13
Liogluta 83
Lithocharis 175
Lobrathium 176
Lordithon 47
Lyprocorrhe 86
Medon 177
Megalinus 196
Megarthrus 24
Meotica 137
Metopsia 25
Micralymma 14
Microdota 87
Micropeplus 28
Micropeplus (syn.) 27
Mniusa 138
Mocyta 88
Mycetoporus 48
Mycetoporus (syn.) 45
Mycetota 89
Myllaena 125
Myrmecopora 109
Nehemitropia 90
Neobisnius 197
Neohilara (syn) 72
Neuraphes 168
Nototthecta 91
Ocalea 139
Ochthephilum 178
Ochthephilus 156
Ocypus 198
Ocypus (syn.) 206
Ocyusa 140
Ocyusa (syn.) 128
Oligota 121
Olophrum 15
Omalium 16
Ontholestes 199
Oreostiba 92
Othius 200
Oxypoda 141
Oxytelus 157
Pachnida 93
Pachyatheta 94
Paederus 179
Parabolitobius 49
Parameotica 95
Parocyusa (syn.) 144
Pella 123
Phacophallus 201
Philhygra 96
Philonthus 202
Philonthus (syn.) 18
Philorinum 17
Phloeocharis 42
Phloeonomus 18
Phloeopora 142
Phloeostiba 19
Phyllodrepa 20
Phyllodrepa (syn.) 8
Phyllodrepoidea 21
Phytosus 147
Plataraea 97
Platydracus (syn.) 188
Platystethus 158
Polystomota (syn.) 55
Proteinus 26
Pselaphaulax 37
Pselaphus 38
Pseudomedon 180
Pseudopsis 172
Quedius 203
Reichenbachia 39
Remus 204
Rugilus 181
Rybaxis 40
Scaphisoma 148
Schistoglossa 98
Scopaeus 182
Scydmaenus 169
Scydmoraphes 170
Sepedophilus 50
Siagonum 149
Staphylinus 205
Stenichnus 171
Stenus 163
Sunius 183
Syntomium 159
Tachinus 51
Tachyporus 52
Tachyusa 143
Tasgius 206
Tetralaucopora 144
Tetropla 99
Thamiaraea 100
Thiasophila 145
Thinobaena 101
Thinobius 160
Thinodromus 161

Thinonoma 146
Traumoecia 102
Tinotus 56
Trichiusa 103
Trichophya 53
Trissemus (syn.) 36
Tychus 41
Xantholinus 207
Xantholinus (syn.) 196
Xylodromus 22
Xylostiba 23
Zyras 124
Zyras (syn.) 123

NOTICE

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